



The role of emotional intelligence on psychological well-being and early maladaptive schema in adolescents:

A research portfolio

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Date: 6th November, 2013

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Thesis Abstract

Background: The concept of emotional intelligence (EI) has received much attention in research, with trait EI having been shown to be particularly associated with mental health (Martins, Ramalho & Morins, 2010). However, there is little explanation of the aetiology of this construct; with mixed findings as to whether gender differences exist in EI (Joseph & Newman, 2010). A recent study has shown a possible link between EI and early maladaptive schema, based on the idea that EI is developed through early experiences and influenced by parental socialisation (Karami, 2013). However little research has been conducted in support of this hypothesis.

Introduction: This research portfolio begins with a systematic review of the literature on gender and trait emotional intelligence (EI), in order to synthesise literature on gender differences in self-reported EI (Part I). It continues with an empirical study of an adolescent population (Part II) which aims to investigate the hypothesised relationships between EI and early maladaptive schema (EMS), their effect on psychological well-being (PWB), and gender differences in EI.

Results: Synthesis of cross-sectional literature examining gender differences in EI suggests mixed findings, with the majority of studies reporting no gender differences found in overall trait-EI. Analysis of individual EI dimensions showed that females are likely to exhibit greater intrapersonal skills, whilst males show greater interpersonal skills. Results of this empirical study differed in part from these findings. This study demonstrated that EI, EMS and depression are significant predictors of adolescent well-being, although EI did not appear to moderate the relationship between EMS and PWB.

Discussion: Findings contribute to the growing body of self-reported EI research in relation to mental health and gender research, and highlight the need for greater awareness of EI in clinical practice. Implications for psychological theory and intervention are discussed.

Part I: Systematic Review

Gender Differences in Self-Report Emotional Intelligence: A Systematic Review

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Abstract

Background: Gender differences in emotional intelligence (EI) are generally accepted in applied psychology settings, with current research showing trends favouring females on ability EI (Joseph & Newman, 2010). However, research on trait-EI shows inconsistent results, despite a more robust association with mental health. Greater understanding of gender differences in EI may enable targeted psychological intervention and insight into individual differences in mental health.

Aim: This systematic review aimed to synthesise and evaluate literature investigating whether gender is significantly associated with self-report EI, investigating potential trends across measures, nationality and age.

Method: The research databases MEDLINE, CINAHAL, EMBASE, PsycInfo, Cochrane Database of Systematic Reviews and the Campbell Corporation were searched between November 2012 and January 2013. This was supplemented by 'grey' literature searches, with studies meeting the inclusion criteria quality assessed.

Results: The majority of studies reported that gender was not significantly associated with global trait-EI. Stronger gender profiles exist across EI subscales. Females generally demonstrated higher 'interpersonal' trait-EI and males generally demonstrated higher 'intrapersonal' EI.

Conclusion: Conflicting results in global EI may be explained by the variety of measures employing different EI dimensions, with a more consistent definition of EI required to ensure reliability of results. Findings suggest that gender stereotyping of EI should be avoided, and that interventions to foster EI should not be limited to one particular sex. Research is needed to identify alternative influences on gender and self-reported EI.

Keywords: Emotional intelligence, systematic review, gender, sex.

Introduction

Emotional intelligence (EI) is understood to describe an underlying ability to perceive, understand, appraise and express emotions in ourselves and others to guide our action and thought (Van Rooy & Viswesvaran, 2004). Debate as to the most effective measurement of EI is based on theoretical arguments about the nature of the concept. There are two main models of EI; ability EI and trait EI, which are conceptually distinct (Mathews, Zeidner & Roberts, 2007). Ability EI theorists describe EI as a set of abilities which can be measured objectively, similar to cognitive ability (Mayer, Caruso & Salovey, 1999). Specific, performance-based measures have been designed to measure these abilities (perception and expression of emotion, comprehension and application of emotion-related information, emotion regulation; Mayer and Salovey, 1997). However, measures of ability EI appear to have limited predictive validity (Petrides, 2011). Similar dimensions are utilised in the trait theory of EI. Measured through self-report scales (Petrides & Furnham, 2001), trait-EI is defined as self-perceived competencies in emotion-related information (Petrides, 2011). A third 'mixed' model of EI has also been proposed (e.g. Bar-On & Parker, 2000), which assumes that EI is a set of skills, traits and abilities which are also measured through self-report. Measures developed according to this 'mixed' model are generally considered to be conceptually similar to that of the trait model (Perez, Petrides & Furnham, 2005).

Trait-EI theorists posit that EI is strongly linked to, but distinct from, the Big 5 personality traits (Petrides & Furnham, 2001). Studies employing measures of personality as well as trait-EI have shown that they have divergent validity (Perez et al., 2005), with trait-EI showing incremental validity over personality (Day, Therrien & Carroll, 2005). This provides support that trait-EI is a meaningful concept; particularly as recent studies have shown that trait-EI has greater association with mental health than ability EI (Martins, Ramalho & Morin, 2010). It appears that despite discrepancies in the concept and measures of EI, both trait and ability EI have applicability in various settings. For example, research has demonstrated that levels of EI affect mental health (Davis & Humphreys, 2012), and job performance (Joseph & Newman, 2010). Moreover, both models have been shown to have adequate convergent validity (Brackett & Mayer, 2003).

Gender differences in EI

A wealth of research has considered gender differences in EI, in an attempt to identify potential gender profiles for this construct (Martins et al., 2010; Joseph & Newman, 2010). Partially stemming from social psychology theories of multiple intelligences, Goleman claimed that females and males have differing profiles of EI; with females generally stronger on interpersonal skills; generally defined as the ability to appraise emotions in others (Goleman, 1995). Additionally, Goleman posited that males are stronger on intrapersonal skills, described as the ability to monitor and control their own emotions, and some evidence for this has been reported (Fernandez-Berrocal & Extremera, 2006). Understanding these differences may enable further understanding of potential clinical risk factors in mental health settings. For example, females are more likely to present with internalising disorders such as depression with less adaptive coping styles (Nolen-Hoeksema, 2001), a finding which may support the idea that females have low intrapersonal skills. Males have generally been shown to express emotional distress behaviourally more frequently than girls (Siu, 2009). Relatedly, stronger intrapersonal skills in males supports findings that males are generally less likely to discuss emotions (Hall, Carter & Horgan, 2000) and are less likely to engage with mental health services (Chandra & Minkovitz, 2006).

In a subsection of their integrative meta-analysis on EI and job performance, Joseph and Newman (2010) considered gender differences in global EI scores. The authors found that no gender differences existed in self-report measures of EI, although females scored significantly higher on performance-based measures. In contrast, Arora et al. (2010) reviewed trait-EI in medical professionals, finding that females have greater trait-EI levels than their male counterparts.

Two more demographically representative meta-analyses (Schutte, Malouff, Thorsteinsson, Bhullar & Rooke, 2007 and Martins et al., 2010) found that the majority of studies show that females have greater EI on both trait and ability measures. None of these reviews considered gender differences in specific EI dimensions in detail. Martins et al. (2010) found that age and culture did not moderate the relationship between EI and mental health; despite theory suggesting that these factors may influence the association between gender and EI (Matthews, Zeidner & Roberts, 2004). Both Martins et al. (2010) and Schutte et al. (2007) illustrated that gender had a significant moderating effect on the relationship between EI and mental health.

Understanding gender differences in EI

Explanations for gender differences in EI have rarely been discussed in literature; however much can be extrapolated from theories relating to gender differences in emotional expression. Theories of parental socialisation of emotional expression including gender schema theory (Bem, 1981) and social cognitive theory (Bussey & Bandura, 1999) may shed some light in explaining EI gender differences.

Parental socialisation and cultural stereotyping

The most accepted explanation of gender differences in emotional expression considers variation in parental socialisation. Social cognitive theory posits that emotional expression is learned through imitation and environmental responses (Bussey & Bandura, 1999). Fagot, Rodgers & Leinbach (1997) reviewed literature on patterns of parent-son and parent-daughter interaction, showing several differences which they proposed are likely to lead to gender-typed development. A main finding is with regards to socialisation of verbal expression of emotion. One study demonstrated that mothers were likely to respond to anger in boys with attentive concern, yet inhibit or ignore anger in girls, although depressed mothers differed in these interactions (Radke-Yarrow & Kochanska, 1990; in Brody 1997).

According to gender schema theory, these early experiences are assimilated in the child's developmental process (Bem, 1981). Based on schema theory, which is the premise that experiential information is gathered, processed and stored to form a network of readily accessed perceptual ideas (Piaget, 1981), an individual's gender schema will vary dependent on their developmental experiences. The strong prevalence of traditional gender stereotyping is likely to shape a child's gender identity into their traditional gender roles (Bem, 1981).

Brody suggests that there is cultural variation in verbal emotion expression which is predominantly driven by gender stereotyping (Brody & Hall, 2000). Studies examining cultural differences in emotional expressiveness demonstrate that verbal expression of emotion is more frequent in females in Western society, whereas males are more likely to suppress negative, 'powerless' emotions such as sadness; instead employing more intrapersonal coping strategies (Fischer, Mosquera, van Vianan, & Manstead, 2004). Females in Western culture place more emphasis on social modelling and

interacting with others to discuss emotions, for example through socialising in smaller, closer peer groups than their male counterparts (Hall, Carter & Horgan, 2000).

A dissertation looking at cultural differences between subscales on one measure of trait-EI used the cultural dimensions framework developed by Hofstede (2001), which illustrated some dissimilarities across culture using an assessment tool of EI, with variation between American and Iranian populations (Ghorbani, Watson, Bing, Davison, & Mack, 2002). The authors highlighted that psychometric evaluation of EI measures are required when used in culturally varied populations. Mixed findings in this review suggest that further clarity is needed as to whether specific gender differences exist across culture based on previous research. Given the self-report nature of trait-EI and its association with mental health, it is important to understand potential stereotypes which may affect the development of poor psychosocial outcome.

As such, it appears that gender roles in emotional expression may form due to parentally-delivered gender role bias furthered by socialisation experiences (Bar-On & Parker, 2000). This is likely to impact on the understanding, appraisal and regulation of emotions in young people. These differences in social expectations of emotion regulation and identification have been shown to impact on self-reported EI in adult populations (Petrides & Furnham, 2000). Additionally, recent studies have demonstrated an association between attachment theory and EI (Kafetsios, 2004; Burns, 2011) however there is sparse research examining gender differences in attachment, although recent research has suggested that females may show stronger attachment to parents (Tambelli, Laghi, Odorisio, & Notari, 2012) and peers (O'Koon, 1997) than males.

Aims of Review

Assessing whether interpersonal and intrapersonal gender differences exist may help to target clinical intervention through emotional identification and regulation work. This review aims to contribute to the research base by systematically examining literature investigating whether gender differences exist in self-reported EI in the general population. Consideration of findings will be given in relation to variance across age, culture and measures used, in order to investigate potential trends which may affect the interpretation of results.

1.0 Method

1.1 Inclusion/Exclusion Criteria

The inclusion criteria were based on the 'PCOS' framework (population, comparison, outcome, study design, described in the Centre for Reviews and Dissemination Guidelines (CRD, 2008).

Population

Criteria required that subjects stemmed from a representative sample through obtaining participants from the general population: where schools, colleges, universities or workplaces were included, these involved sampling across two or more faculties or geographical locations. Any samples recruited from workplaces required a variety of distinct occupations, with samples of leaders, managers or other professional groups excluded to increase comparability of participants, as literature suggests occupation may be a confounding variable (Mikolajczak & Luminet, 2007). Populations from any country were eligible. Young people (age ten to eighteen) and adults (under the age of 70) were included in the review. Studies of older adults and children under ten years old (e.g. Mavroveli, Petrides, Sangareau & Furnham, 2009) were excluded due to the expected variation between age groups due to hypothesised cognitive dedifferentiation (Mathews, Zeidner & Roberts, 2004). Studies with insufficient information on the recruitment sample related to the inclusion/exclusion criteria were also excluded.

Comparators

The comparator of interest was trait-EI and gender. It was required that studies included the comparison of one or more self-report measures of EI with males and females, as an aim. Single gender studies were excluded.

Outcome Measures

Inclusion criteria required that each study include a measure of trait-EI with acceptable psychometric properties (Cronbach's alpha $>.70$; Cronbach, 1951) which were outlined in the article or cited from preceding literature by questionnaire authors. Explicit statistical analysis of the association between gender and trait-EI was required. Where only subscales of EI were included and total EI scores

omitted, authors were contacted for further information. Studies employing only ability measures of EI were excluded from the review.

Study Design

A pre-requisite of articles was to contain direct analysis and discussion of gender and EI, to be cross-sectional in nature and with a requirement to report significance levels of outcome variables in relation to either global EI or subscale EI scores, also referred to as “EI dimensions”. Psychometrically validated self-report measures described as ‘mixed’ or ‘trait’ EI were required.

1.2 Database Search Strategy

All searches took place between 30th November 2012 and 30th January 2013. Search terms “emotional intelligence”, “emotional self-efficacy”, and “emotional competency” with “gender”, “sex” and relevant variations of these words given by mapped search-term headings in respective databases were entered into EMBASE, MEDLINE, PsycInfo, ASSIA and CINAHL. Non-English articles were omitted from the review. The exact search terms can be found in appendix 1. Google Scholar was also searched based on these terms.

2.0 Results

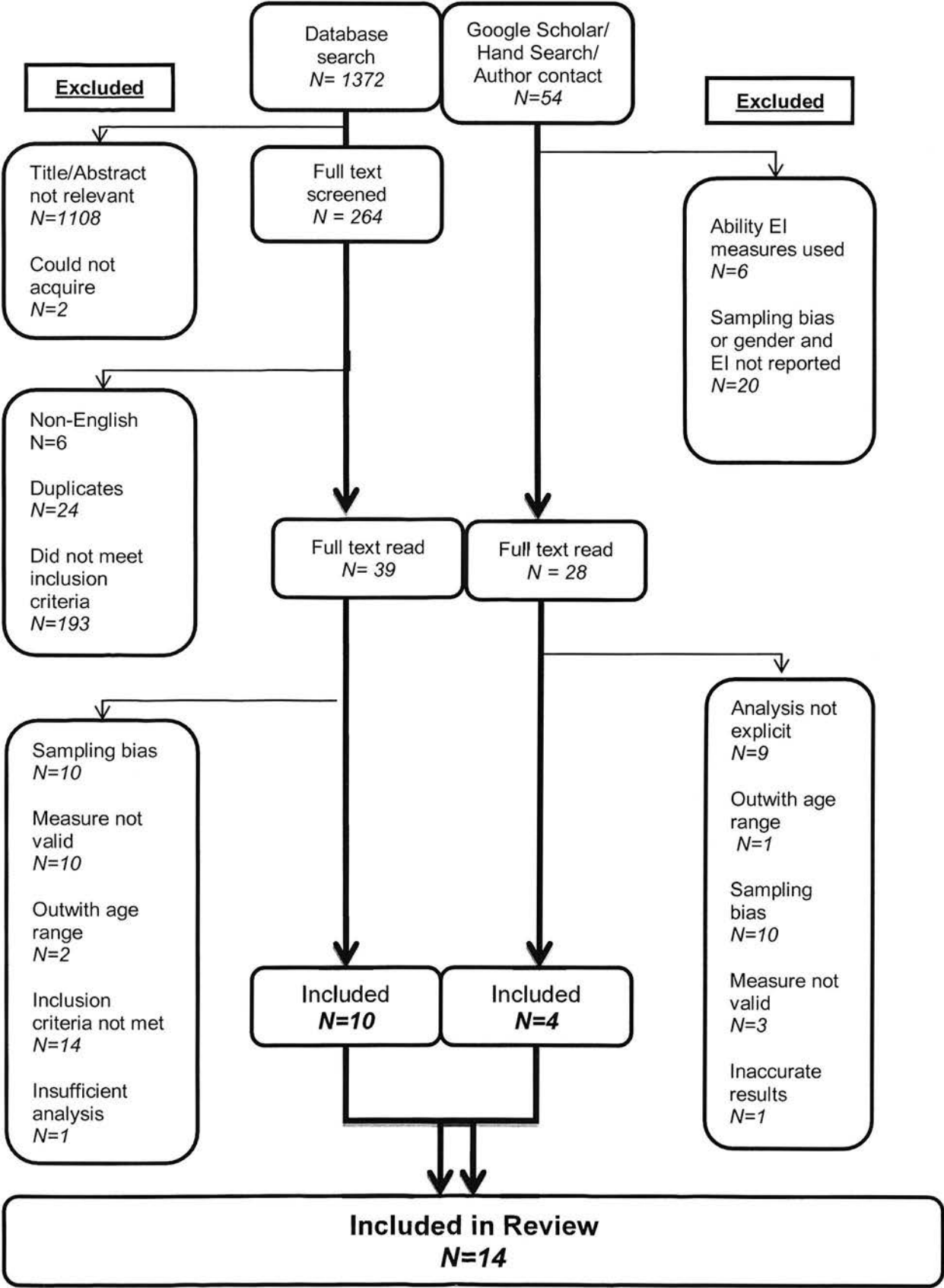
2.1 Study Inclusion and Exclusion

A total of 1372 titles were screened, with 1108 rejected due to titles being insufficiently related to the subject topic. Two-hundred and sixty-four articles were then screened by abstract, and one hundred and ninety-three excluded due to not meeting inclusion criteria. Two studies could not be acquired. Six potentially relevant studies were excluded due to non-English translation. Twenty-four duplicates were removed at this time. Thirty-nine articles were retained for full-text screening.

Google Scholar and hand searching reference lists of key articles and the meta-analysis by Martins et al. (2010) revealed fifty-four potentially appropriate articles, eight of which were duplicates and removed. Twenty were insufficiently related to the topic. Twenty-eight full-text articles were read. Twenty-four were discounted due to not meeting criteria fully after retrieving full text articles. A second Google Scholar search was conducted in May 2013; and automatic updates from Medline and the Trip database was installed to ensure that check newly published relevant research had not been missed.

In total, sixty-seven full text articles from the total search strategy were read and assessed against the inclusion/ exclusion criteria. Three key authors in the field were contacted for unpublished studies, with one obtained, which was excluded. Fourteen articles were accepted as meeting the initial criteria for inclusion in the systematic review using the inclusion criteria in total. A flowchart of the systematic process is diagrammatically presented in figure 1.

Figure 1 Diagrammatic representation of search process



2.2 Quality Assessment of Studies

An amended version of the Sign 50: Cohort Studies Checklist (Methodology Checklist 3: Cohort Studies, Scottish Intercollegiate Guidance Network (SIGN), 2011; in appendix 2) was developed to critically appraise the included studies. Articles were rated using an overall scoring system dependant on subjective assessment of scores on various categories: population characteristic, sample size, attrition description, outcome measures, inclusion/exclusion criteria, study design, sample style, confounding variables, statistical tests employed, social setting (urban, rural or both), and discussion of outcomes relating to hypotheses.

Guidelines were created to ensure reviewers were rating according to a detailed procedure. "Well covered" was allocated to aspects of the study which were clearly explained in the study in relation to methodology and analysis to enable confidence in findings. "Adequately covered" was allocated to aspects of the study which gave sufficient detail which did not meet the 'well covered' criterion, leaving some doubt as to the efficacy of the study. "Poorly addressed" was prescribed when very little detail was given, which was likely to have impacted on readers' confidence in the findings. "Not addressed" and "not reported" were allocated when the study did not give consideration to an aspect.

Articles received an overall rating of '++', '+' or '-', with descriptive quantifiers taken from the Scottish Intercollegiate Guidance Network (Methodology Checklist 3: Cohort Studies, SIGN), 2011).

- '++' *All or most of the criteria have been fulfilled: where they have not been fulfilled the conclusions of the study or review are thought very unlikely to alter*
- '+' *Some of the criteria have been fulfilled: those criteria that have not been fulfilled or not adequately described are thought unlikely to alter the conclusions*
- '-' *Few or no criteria fulfilled: the conclusions of the study are thought likely or very likely to alter*

These quality criteria for individual studies are presented in Table 1.

In order to decrease subjectivity and strengthen the data synthesis assessment process, a second reviewer rated 73% of these journals using the amended Sign 50 appraisal tool with guidance notes developed by the main reviewer. Identical ratings were obtained for all but two studies (McIntyre, 2010 and Harrod & Scheer, 2005). These articles were discussed and re-evaluated between

reviewers until consensus was reached, and the remainder assessed by the first reviewer following this discussion. Quality criteria ratings for each article are presented in table 1.

Table 1 Quality criteria ratings for all studies

Study Reference	Focused question	Comparable populations?	Retention rate	Inclusion rating	Exclusion criteria	Valid & Reliable Scale	Appropriate Analysis?	Confounders	Overall rating
Alumran & Punamaki, 2008	Well covered	Y	Adequately addressed	Not reported	0	Well covered	Y	3	++
Craig, Tran, Hermens, Williams, Kemp, Morris & Gordon, 2009	Well covered	Y	Well covered	Well covered	3	Poorly addressed	Y	3	++
Gorostiaga, Balluerka, Aritez, Haranburu & Alonso-Arbiol 2011	Well covered	Y	Not reported	Not addressed	0	Well covered	Y	1	+
Harrod & Scheer, 2005	Well covered	Y	Well covered	Well covered	0	Adequately addressed	Y	3	++
Hogan, Parker, Weiner, Watters, Wood & Oke, 2010	Adequately addressed	Y	Not addressed	Adequately addressed	0	Well covered	Y	3	++
McIntyre, 2010	Adequately addressed	Y	Not addressed	Not addressed	0	Well covered	Y	2	-
Mikolajczak & Luminet, 2007	Well covered	Unknown	Not addressed	Not addressed	0	Well covered	Y	3	++
Naghavi, Redzuan, Asgari, Mirza (2012)	Adequately covered	Y	Not addressed	Not addressed	0	Adequately addressed	Y	0	+
Petrides & Furnham, 2000	Well covered	Y	Not addressed	Poorly addressed	0	Adequately addressed	Y	1	-

Study Reference	Focused question	Comparable populations?	Retention rate	Inclusion rating	Exclusion criteria	Valid & Reliable Scale	Appropriate Analysis?	Confounders	Overall rating
Sanchez-Ruiz, Perez-Gonzalez & Petrides, 2010	Adequately addressed	Unknown	Well covered	Not addressed	0	Poorly addressed	Y	2	-
Schutte Malouff, Hall, Haggerty, Cooper, Golden & Dornheim (1998)	Adequately covered	Unknown	Not addressed	Poorly addressed	0	Well covered	Y	0	-
Siu, 2009	Well covered	Y	Not addressed	Poorly addressed	0	Well covered	Y	1	+
Tsaousis & Kazi, 2012	Well covered	Y	Not addressed	Adequately addressed	0	Well covered	Y	2	+
Williams, Daley, Burnside & Hammond-Rowley, 2009	Well covered	Y	Not addressed	Adequately addressed	2	Well covered	Y	3	++

2.4 Participant characteristics

Five articles examined adolescents (Gorostiaga, Balluerka, Ariteza, Haranburu & Alonso-Arbiol, 2011; Harrod & Scheer, 2005; Hogan, Parker, Weiner, Watters, Wood & Oke, 2010; Naghavi, Redzuan, Asgari & Mirza, 2012, and Siu, 2009), and two studies involved a mixture of adults and adolescents (Alumran & Punamaki, 2008 and Tsaousis & Kazi, 2012). One study sampled children aged 10-11 years (Williams, Daley, Burnside & Hammon-Rowley, 2009).

The remaining six studies included adults only (maximum age reported was 70 years although age range was undefined in two articles (McIntyre, 2010; Petrides & Furnham, 2000). A total of 8952 participants (5079 females, 3845 males, 28 unreported) were included in this review across the fourteen studies (56% female and 43% male; 1% unknown gender). These consisted of 5283 adults (age 18-70) and 3669 young people (age 10-18).

2.5 Study characteristics

Studies from numerous countries contribute to these findings. Three were British (Petrides & Furnham, 2000; Sanchez-Ruiz, Perez-Gonzalez & Petrides, 2010; and Williams et al., 2009); three were European (Gorostiaga et al., 2011; Mikolajczak & Luminet, 2007 and Tsaousis & Kazi, 2012). Additionally, there were three American studies (Harrod & Scheer, 2005; McIntyre, 2010 and Schutte, Malouff, Hall, Haggerty, Cooper, Golden & Dornheim, 1998); one Canadian (Hogan et al., 2010) one Chinese (Siu, 2009), one Australian (Craig, Tran, Hermens, Williams, Kemp, Morris & Gordon, 2009), one Iranian (Naghavi et al., 2012) and one Bahranian (Alumran & Punamaki, 2008). All studies were cross-sectional in design with samples of a representative demographic. Characteristics of all included studies are presented in table 2.

Table 2 Overview of all studies

Study reference	Variables of Interest	Population, sample size, mean age & age range	Sampling method	Self-report EI measure	Key Findings: Gender differences in EI Significant $p < 0.05$	Statistical Analysis	Effect size
Alumran & Punamaki (2008)	Trait EI Gender Coping Style Academic Achievement	Adolescents & Adults N=312 Range: 15-21 170 F, 142 M	Random	EQi-YV(S)*	Total Score: No significant difference. Subscale Scores: F score higher on interpersonal subscale.	Pearson's correlations	Total EI 0.04
Craig, Tran, Hermens, Williams, Kemp, Morris & Gordon (2009)	Trait EI Gender Personality Mood Cognitive ability Electrophysiology	Adult N=856 Range 18-60 (Mean=35) 446 F, 410 M	Random	BRIEF	Total Score: F score higher on global EI. Subscale Scores: F score higher on Empathy. M score higher on self-concept subscale.	MANOVA/ Hierarchical regression	Total EI 0.15 Empathy 0.16 Self-Concept 0.07 Social Skills 0.04
Harrod & Scheer (2005)	Trait EI Gender Residence Location Parent's Education Household Income	Adolescent N=138 Range: 16-19 91 F, 109 M	Opportunity	EQi-YV(S)*	Total Score: F score higher on global EI. Subscale Scores: Not reported	T-tests ANOVA	Total EI 0.17

Study reference	Variables of Interest	Population, sample size, mean age & age range	Sampling Method	Self-report EI measure	Key Findings: Gender differences in EI <i>Significant $p < 0.05$</i>	Statistical Analysis	Effect size \pm
Hogan, Parker, Weiner, Watters, Wood & Oke (2010)	Trait EI Gender Age Ethnicity Nationality Parent's Occupations Social support Cognitive ability	Adolescent $N=200$ Range: 15-16 (Mean =15.5) 96 F, 96 M	Opportunity	EQi-YV*	Total Score: No significant difference. Subscale Scores: F higher on intrapersonal & adaptability. No other subscale differences.	Regression T-tests	Total EI 0.01 Adaptability 0.20 Interpersonal 0.23 Intrapersonal 0.02
Gorostiaga Balluerka, Ariteza, Haranburu, & Alonso-Arbiol (2011)	Trait EI Self-concept	Adolescent $N=192$ Range: 13-19 (Mean=16) 512 F, 526 M	Opportunity	SSREIS* TMMS-23	Total Score: No significant difference. Subscale Scores: F score higher on attention and emotion expression.	Pearson's correlations & factor analysis	Attention 0.06 Clarity 0.14 Repair 0.01
McIntyre (2010)	Trait EI Ability EI Gender Personality Verbal Ability Economic state Perceived Health	Adult $N=420$ (Mean= 20) 215 F, 205 M	Self-select	EQi* MSCEIT	Total Score: Not reported. Subscale Scores: M higher on intra-personal. Loadings indicative of F higher interpersonal.	Zero order correlations	Adaptability 0.03 Interpersonal 0.14 Intrapersonal 0.00 Stress Manag 0.06

Study reference	Variables of Interest	Population, sample size, mean age & age range	Sampling Method	Self-report EI measure	Key Findings: Gender differences in EI <i>Significant p<0.05</i>	Statistical Analysis	Effect size±
Mikolajczak & Luminet (2007)	Trait EI Gender Mood Profession Optimism Personality Alexithymia Nonverbal reasoning Social desirability	Adult N=740 (Mean=25.5) 512 F, 217 M, 11 n/a	Self-select & Snowball	TEIQue	Total Score: M higher on global EI. Subscale scores: F higher on emotionality. M higher on sociability and self-control.	Pearson's correlations & factor analysis	Total EI 0.13 Emotionality 0.10 Self-control 0.27 Sociability 0.16 Wellbeing 0.06
Naghavi, Redzuan, Asgari, Mirza (2012)	Trait EI Gender	Adolescent N=234 Range: 12-15 118 F, 116 M	Cluster	SSREIS*	Total Score: F score higher. Subscale scores: F score higher on emotion appraisal, emotion regulation and emotion utilisation	T-tests	Total EI 0.79
Petrides & Furnham (2000)	Trait EI Gender Self-Estimate EI	Adult N=260 (Mean=23.4) 175 F, 85 M	Random	EQI* Self-estimated EI	Total Score: No significant difference. Subscale Scores: F higher on Social Skills, no difference on other subscales.	T-tests ANCOVA	Emotion appraisal 0.07 Optimism 0.08 Social Skills 0.18 Emotion Utilization 0.0

Study reference	Variables of Interest	Population, sample size, mean age & age range	Sampling Method	Self-report EI measure	Key Findings: Gender differences in EI <i>Significant $p < 0.05$</i>	Statistical Analysis	Effect size \pm
Sanchez-Ruiz, Perez-Gonzalez, & Petrides (2010)	Trait EI Gender Faculty	Adult N=512 Range: 17-44 (Mean =21) 310 F, 202 M	Not specified	TEIQue	Total Score: No significant difference. Subscale Score: M score higher for self-control, no difference on other subscales.	MANOVA	Emotionality 0.02 Self-control 0.13 Sociability 0.05 Wellbeing 0.03
Schutte, Malouff, Hall, Haggerty, Cooper, Golden & Dornheim (1998)	Trait EI Gender <i>Subgroups:</i> Alexithymia Non-verbal Optimism Mood	Adult N=346 (Mean=29) 218 F, 111 M	Not specified	SSREIS* TMMS-23	Total Score: F higher on global EI Subscale scores: Not reported.	T-tests	Total EI 0.37
Siu (2009)	Trait EI Demographics Mood/Aggression	Adolescent N=325 Range: 12-14 158 F, 167 M	Opportunity	SSREIS*	Total Score: Not reported. Subscale Score: F higher on Self-management and Social skills.	T-tests	Self-Management 0.15 Social Skills 0.25

Study reference	Variables of Interest	Population, sample size, mean age & age range	Sampling Method	Self-report EI measure	Key Findings: Gender differences in EI Significant $p < 0.05$	Statistical Analysis	Effect size \pm
Tsaousis & Kazi (2012)	Trait EI Gender Age	Adolescent & Adult N=2919 Range: 14-n/a 1728 F, 1181 M	Not specified	GEIS	Total Score: Not reported. Subscale Score: F higher in caring and empathy, and expression and recognition of emotions. M higher in use of emotions.	Critical ratios & factor analysis	Unable to calculate
Williams, Daley, Burnside, Hammond-Rowley (2009)	Trait EI Gender Emotional ability Cognitive Ability Mood	Young people N=598 Range: 10-11 311 F, 287 M	Opportunity	TEIQue-ASF SSREIS*	Total Score: No significant difference. Subscale Scores: Not reported for EI measures. F higher on 2 of 3 "emotional ability" measures.	Zero order correlations	Total SSREIS 0.05 Total TEIQue-ASF 0.07

Abbreviations:

"F" = Female; "M" = Male.

EI measures: "BRIEF"=Brain Resource Inventory for Emotional Intelligence Factors, "GEIS"= Greek Emotional Intelligence Scale, "EQ-I-YV"=Emotional Quotient Inventory (Youth Version), "EQ"/= Emotional Quotient Inventory, "EQ-I-YV(S)"= Emotional Quotient Inventory (Youth Version, short form), "SSREIS"= Schutte's Self-Report Emotional Intelligence Scale**, "TEIQue"= Trait Emotional Intelligence Questionnaire, "TEIQue-ASF"= Trait Emotional Intelligence Questionnaire, "TMMMS"= Trait Meta-Mood Scale

*EQI and SSREIS were developed based on the 'mixed' model of EI

**N.b. "SSREIS" is also known as SEIS, SEI, SSREI and EIS in literature

\pm Effect sizes are considered small at 0.10, medium at 0.30, and large at 0.50 (Cohen, 1988)

2.6 Overview of studies

Fourteen studies were rated overall. Of these, six studies were assigned a '++' quality rating category, four a '+' and four a '-' category. Eleven studies reported global EI scores. Studies are discussed in relation to overall EI findings, subdivided by quality rating. Three studies did not report global EI.

Studies reporting no significant overall gender difference

Three out of six '++' rated studies did not find significant gender differences in global EI (Alumran & Punamaki, 2008; Hogan et al., 2010; Williams et al., 2010). Alumran & Punamaki (2008) illustrated that gender did not show a significant main effect for global EI, with age showing no significant effect on EI. Females scored higher on the interpersonal subscale, with no other significant subscale differences.

Hogan et al. (2010) found no significant gender differences in global EI scores, although females showed greater scores on the interpersonal and adaptability dimensions, with no other significant results in EI subscales. The authors showed that trait- was additive on verbal IQ and achievement in male, but not female, adolescents.

Williams et al. (2009) compared trait-EI across two measures. Their results suggested that while no gender differences were found in global EI, females scored significantly higher on emotional ability measures, with EI subscales not reported.

Of the four studies assigned a '+' rating, one study did not find significant gender differences. Gorostiaga examined two EI measures with adolescents in order to measure the reliability of the Trait Meta-Mood Scale short form (TMMS) in Spanish adolescents. Neither measure identified significant gender differences, although females scored higher on attention and expression of emotion subscales.

Two studies assigned a '-' rating found no significant gender differences in EI (Sanchez-Ruiz et al., 2010; and Petrides & Furnham, 2000). Sanchez-Ruiz and colleagues sampled across a range of faculties at University, demonstrating gender differences in the interaction between EI and faculty (Sanchez-Ruiz et al., 2010). They found that, whilst there was a significant effect between gender

and EI across faculties, and males scored higher on the self-control EI subscale, there were no significant differences in global EI or other subscales.

Petrides and Furnham (2000) examined the relationship between gender and EI in measured and self-perceived EI using an adapted questionnaire. Results show that males perceive their EI to be higher, despite no significant difference between gender and measured EI. Females scored higher on the measured EI social skills subscale. Their analysis demonstrated an overlap between measured and perceived EI.

Studies reporting females have greater self-report EI

Two '++' rated studies found that females have significantly higher trait-EI (Craig et al., 2009; and Harrod & Scheer, 2005). Harrod & Scheer (2005) examined differences between age, location and household income, finding that females score higher on global EI. Females from higher socioeconomic backgrounds showed a higher level of trait-EI than males. Associations between gender and EI subscales were not reported. Craig and colleagues measured trait and ability EI. They found that females score higher on global trait-EI as well as the empathy subscale (Craig et al., 2009). Males score higher on the self-concept subscale. Similar results were presented using the ability EI measure.

Two studies of the four assigned the '+' rating demonstrated that females have greater global EI than male adolescents in their sample (Naghavi et al., 2012 and Schutte et al., 1998). Naghavi and colleagues demonstrated a large effect size for females scoring higher on global EI ($d=0.79$) as well as subscales of emotion regulation, emotion appraisal and emotion utilisation (Naghavi et al., 2012). Schutte et al. (1998) also demonstrated that females have higher EI than that of males, with no subscales reported.

There were no studies showing that females have greater EI in the '-' quality rating category.

Studies reporting males have greater total EI

One study which was allocated the '++' rating reported that males have significantly higher EI (Mikolajczak & Luminet, 2007). This study found that males score higher on 'sociability' and 'self-control' and the global scale, and that females score higher on 'emotionality' subscales of the TEIQue.

There were no studies demonstrating that males have greater EI in the '+' or '-' quality rating categories.

Studies not reporting global trait-EI scores

Three articles (Siu, 2009; McIntyre, 2010; Tsaousis & Kazi, 2013) did not report global EI scores in relation to gender. Of these studies, two met the '+' classification (Tsaousis & Kazi, 2012 and Siu, 2009) and one met the '-' classification (McIntyre, 2010).

Tsaousis and Kazi (2012) examined EI and latent mean scores across gender and age in adolescents, youth and adults. Latent means varied across age and gender groups, with females scoring higher on average in 'expression and recognition' and 'caring and empathy' EI subscales.

Siu (2009) examined the relationship between EI, gender and internalising and externalising difficulties. Females scored higher on self-management and social skills as measured by EI subscales.

McIntyre (2010) compared trait and ability EI measures across genders. This study demonstrated that intrapersonal subscales had the highest loading for males, and females loaded highest onto interpersonal subscales. Global EI scores were not reported. Females scored significantly higher on the ability measure of EI on all dimensions.

2.7 Summary of gender differences in global EI

Results of this review indicate that there is no consensus within the current literature as to whether gender differences exist in self-reported EI. Six of the articles included in this systematic review showed that there are no significant differences between gender on EI measures (Alumran & Punamaki, 2008; Hogan et al., 2010; Gorostiaga et al., 2011; Petrides & Furnham, 2000; Sanchez-Ruiz et al., 2010; and Williams et al., 2009). Four report that females score higher on overall EI (Craig et al., 2009; Harrod & Scheer, 2005; Naghavi et al., 2012 and Schutte et al., 1998). In contrast, one study (Mikolajczak & Luminet, 2007) found that males scored higher on global EI than females. Global scores were not reported in three studies, which chose to examine only subscale scores (Tsaousis & Kazi, 2012; Siu, 2009 and McIntyre, 2010).

2.8 Summary of gender differences in EI dimensions

Ten articles report stronger interpersonal scores in female populations than male counterparts (Alumran & Punamaki, Craig et al., 2009, Hogan et al., 2010, Gorostiaga et al., 2011, McIntyre, 2010, Mikolajczak & Luminet, 2007, Naghavi et al., 2012, Petrides & Furnham, 2000, Siu, 2009, and Tsaousis & Kazi, 2012), with one article suggesting that males score higher on interpersonal variables (Mikolajczak & Luminet, 2007). Five studies demonstrate that males generally score significantly higher on intrapersonal variables (Craig et al., 2009; McIntyre, 2010; Mikolajczak & Luminet, 2007; Sanchez-Ruiz et al., 2010 and Tsaousis & Kazi, 2012). Results from one study suggest that females scored higher on one dimension of intrapersonal trait-EI (Siu, 2009).

3.0 Discussion

This review sought to examine the gender differences in self-reported EI in the general adolescent and adult population. Synthesis of the data suggests that there is ambiguity in the literature on whether significant gender differences exist in EI, with the majority of studies demonstrating that whilst there may be significant effect on EI dimensions, it is unlikely that there are global EI gender differences. There is some suggestion that females scored higher on interpersonal-based subscales (the ability to appraise emotions in others) and that males scored higher on intrapersonal-based subscales (the ability to monitor and control their own emotions), which may explain the non-gender differences of the subscale scores. However there is still some inter-article variance in subscale and whole scale scores, which should be considered.

The majority of articles showed that females have superior interpersonal ability to males, particularly on empathy and understanding others' emotions subscales. This is consistent with Simon Baron-Cohen's female 'empathic brain' hypothesis, which postulates that females show greater levels of empathy due to their evolutionary based nurturant roles (Baron-Cohen, 2010); as well as theories of gender stereotyping. For example, developmental theories (such as gender schema theory) posit that females are generally more encouraged to overtly discuss emotions than males (Hall, Carter & Horgan, 2001), which is likely to encourage greater emotion appraisal of others. Additionally, there is some suggestion that males manage and control emotion more independently than females, leading to stronger intrapersonal traits (Bar-On & Parker, 2000). This is generally consistent with previous literature (Harrod & Scheer, 2005).

Difficulties with determining the reliability of the results present due to the unexamined specificity and convergent validity of the majority of EI scales. The nature of self-report scales assessing emotional competencies is likely to be inherently related to alternative factors, such as mood and personality traits (Petrides, Perez-Gonzalez & Furnham, 2007); suggesting high convergent validity between scales. Indeed, a study by Brackett and Mayer (2003) highlighted that there are differences in incremental validity over personality constructs between measures, particularly between mixed and trait models. Moreover, data on the sensitivity and specificity of EI measures are required in future studies in order to further understand the accuracy and applicability of EI tests, which have not been addressed by studies included in this review.

Of note, the majority of studies have small effect sizes for global EI and EI dimensions, which highlights that the statistical significance of findings should be interpreted with caution (Cohen, 1988). In general, effect sizes are larger for studies reporting that females have greater overall EI, but rarely above 0.30; other than in one study. This was true across all measures and populations, and suggests that conclusions regarding gender differences in EI should be viewed as tenuous.

3.1 Variance across EI Measures

One explanation of the discrepancies in these results may relate to the measures used, despite their good psychometric properties (e.g. Perez et al., 2005). It may be that measures of EI are measuring different dimensions, and therefore examining trends across measures is crucial for understanding results. A strength of the studies by Williams et al. (2009), Schutte et al. (1998), and Gorostiaga et al. (2011) are their comparisons of two measures of EI in the same population, which reflects stronger methodological design in measuring the validity of EI scales. These studies found good convergent validity between measures, with no differences in gender profiling between scales.

The TEIQue has been shown to have the greatest predictive ability of the measures (Petrides, 2011). As such, studies utilising this scale alongside the good quality of these particular studies give credence to studies employing this measure. No obvious trends were evident in these studies, although males appeared to score higher on the TEIQue than any other measure. Mikolajczak and Luminet (2007) note that items on the TEIQue's 'sociability' scale relate to assertiveness and decision-making, which is traditionally associated with males in Western cultures.

Of note, the lowest Cronbach's Alpha of any included measure was listed as the SSEIS with alpha range $\alpha = 0.70-.85$ (which subscales are at .70), inspiring less confidence in results (Van der Zee, Schakel & Thijs (2002) in a review by Perez et al., 2005). All studies employing the SSREIS found that females score higher on global trait-EI, which could suggest that items on the SSREIS are weighted towards more traditionally 'feminine' characteristics such as emotional expression. Versions of the EQI vary slightly across populations due to amended versions for children, adolescents and adults. However, similar findings existed across studies employing these scales, suggesting reliability between versions. Generally, studies employing the EQI suggest that females have improved

interpersonal skills and greater overall EI compared to male counterparts, with no obvious gender profiles for alternative EI dimensions.

3.2 Variation across Culture

Cultural variation may be a factor in understanding EI (Ekermans, 2009), which may provide a useful insight into the origin of EI in individual differences. However, where analysis across culture was possible (such as between British studies), there were no obvious emergent trends. Potential difficulties with language barriers when using English-derived scales should be taken into account in these studies, which have not always been fully explained by the authors.

3.2 Variations across Age

An equal number of studies included involve adults or young people (ten to eighteen/nineteen years), giving a broad overview of developmental stages. As there is some debate in literature regarding the extent of change in EI levels across the life-span in EI (Fariselli, Ghini & Freedman, 2008) it was deemed appropriate to involve young people and adults, in order to gain further insight on this issue.

Analysing across age groups (adults and young people); no particular trends emerge, consistent with previous findings (Martins et al., 2010). However, Tsaousis and colleagues included three age groups in their review; presenting significant differences within EI dimensions according to age (Tsaousis & Kazi, 2012); suggesting that studies should continue to examine age effects. Global scores were not analysed in this review, however subscale differences generally revealed that adolescents scored lower on 'caring and empathy', 'control of emotions' and 'use of emotions' than adults. This supports the theory that ability to control emotions and understand others' emotions develop with experience (Mayer et al., 1999). One study found that age did not show significant correlations with expression and recognition of emotion (Tsaousis & Kazi, 2012). Longitudinal and prospective studies examining the effect of age on EI would explain this further, which is recommended for future research.

3.3 Limitations of the studies

Limitations of studies which may affect the interpretation of the results should be noted. Methodological issues in the 'C' rated categories, such as non-reporting of attrition or limited description of recruitment procedures, require these articles to be interpreted with caution. Omitting these studies, however, would be remiss and biased, due to their conformity to the inclusion criteria.

There was a large range of sample sizes (from 192 to 2919), with the majority of effect sizes being small or, at best, medium. Only one study (Naghavi et al., 2011) reported a large effect size, although the explanation for this is not clear and may be a feature of the sample; for example this study involved the only Iranian sample and used cluster sampling unlike others. A relatively low proportion of articles reported effect sizes of gender differences on global EI. Effect sizes for all other articles were calculated using Cohen's formulas for the purpose of this review, which showed negligible effect sizes for the majority of studies (Cohen, 1988; Ellis, 2010). This may reflect publication bias.

Some samples contain an uneven distribution of gender in their studies which may have affected results (e.g. Sanchez-Ruiz et al., 2010). In some articles, this reflected sampling bias, such as recruiting a greater number of participants from university arts faculties, despite research demonstrating that EI levels vary across university and college departments (Sanchez-Ruiz et al., 2010). As such, there may be a bias in results. Attrition rate has not been reported in several studies. Given the length of some questionnaires, this may be a crucial aspect of deciding whether measures are easily applied in clinical settings.

Furthermore, statistical analyses in some studies are fairly limited, with the majority of studies not investigating correlational associations further. Greater exploration of associations are needed to provide insight into the gender and EI association, particularly given the small effect sizes between gender and EI. Many studies examined gender differences related to confounding variables, such as mood, socioeconomic status, cognitive ability and/or academic performance. However an insufficient number of studies examined any one of these variables to synthesise data appropriately amongst these systemically selected articles. As such these have not been discussed in this review.

3.4 Strengths and Limitations of the review

The majority of samples within the studies included were large, with a wide geographical spread enabling potential cultural trends to be identified. Synthesised data incorporates studies across a range of cultures, and incorporated all measures of self-report EI in order to provide a fuller picture of self-report EI, in-keeping with previous reviews and recommendations (Joseph & Newman, 2010; Martins et al., 2010 and Perez et al., 2005). Due to the extent of the literature featuring gender and EI, it should be noted that potentially informative studies may have been missed through very specific criteria. Inclusion criteria stipulated that all required recruitment across a variety of sites, in an attempt to gain a more representative total sample. The decision to exclude specific workplace demographic samples was taken in part to avoid possible replication of results from Joseph and Newman's meta-analysis (2010) which focussed on EI and job performance; and in part to avoid confounded samples. The term 'emotional competency' was missed on final database searches due to reviews suggesting that this term was not sufficiently linked to EI (Mayer & Ciarrochi, 2009), coupled with a lack of relevant studies presenting in EMBASE and MEDLINE with this search term featured as a keyword. However, it is noted that there is potentially overlapping nature of the terminology in models of EI (Mayer & Ciarrochi, 2009). Additionally, technical manuals from the respective measures have not been acquired, which means that normative samples have not been included. Only English-translated articles were included in the review, and therefore studies from other cultures are likely to have been missed which may have affected results.

3.5 Implications of findings and future research

These findings call into question the generally accepted idea that females have higher overall EI. Whilst measures of EI appear to show adequate convergent validity (Perez et al., 2005), there is still substantial divergence between instruments and the terminology of subscales, furthering ambiguity of the concept. For example, some measures (such as the EQI, Bar-On & Parker, 2000) incorporate dimensions which arguably load more strongly onto the five factor model of personality (Costa & McCrae, 2002), such as optimism. This may contribute to the difficulties with demonstrating consistent divergent validity between personality measures and EI outlined by researchers (Matthews, Emo, Roberts & Zeidner, 2006). Moreover, measures contain different numbers of dimensions (Matthews et al. 2006), and it may be that some scales are potentially weighted more heavily towards one dimension. Literature examining the construct of EI requires an improved consensus on its finer details to improve the research base for EI.

One way of improving consistency and effective interpretation of individual differences may be through using more uniform testing procedures, such as using a matched-pairs design comparing questionnaires. Longitudinal and prospective studies would provide essential information on the developmental nature of EI (e.g. Keefer, 2013), as well as further insight into the association between early experiences and EI. By pre-defining outcomes and ensuring reliable methodology in cross-sectional surveys, it may be possible to reach consensus on whether gender differentiates EI. An additional systematic review or meta-analysis on age, cultural trends and ethnicity in EI would contribute greatly to this relatively new and exciting area of research.

Results highlight that it is imperative that both genders are included equally in emotion-focussed intervention and education, and that gender stereotypical assumptions are not made with regard to emotional literacy and regulation. Importantly, the flexibility in scores across studies gives rise to the idea that EI is not pre-defined through an exclusively evolutionary-based aetiology, suggesting that early experiences may well be key in the development of EI. This supports the idea that EI can be fostered (Tiwari & Nalini, 2004). Factors such as coping styles or socioeconomic status may be likely to affect levels of trait-EI which have not yet been sufficiently investigated, suggesting the need for future reviews in these areas. Further research into factors which may impact on gender and EI, such

as the early experiences of individuals, are required. Lower intrapersonal skills in females may associate with maladaptive coping styles, hence becoming a risk factor for psychological well-being. As such, it may be that females need as much attention in EI training as males, and that assessment of EI is conducted on an individual basis for clinical intervention.

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Systematic Review Appendix 1: Search terms for systematic review

Ovid MEDLINE(R) 1946 to June Week 3 2013 & Embase 1988 to 2013

limit 14 to English language

1. competen*
2. Emotion
3. Emotional
4. emotional competen*
5. emotional intelligence
6. emotional self-concept
7. Factors
8. Gender
9. gender bias
10. intelligence
11. self concept
12. Sex
13. sex difference
14. sex factors

**ProQuest – University of Edinburgh Library
Applied Social Sciences Index and Abstracts (ASSIA)**

SU.EXACT.EXPLODE ("Emotional intelligence") AND SU.EXACT("Sex")

SU.EXACT.EXPLODE ("Emotional intelligence") AND SU.EXACT("Gender")

limit to English language

Search for Emotional competency, emotional self-efficacy – no results found

CINAHL

Emotional intelligence –Major concept

Sex factors (exploded from Sex)

Limit to English language

Mapped to search headings:

Emotional intelligence

Emotional intelligence AND Emotions

Emotional intelligence AND Intelligence

Emotional intelligence AND Leadership

Emotional intelligence AND Interpersonal Competence

Emotional intelligence AND Management

Emotional intelligence AND Foreign Countries

Emotional intelligence AND Emotional Development

Emotional intelligence AND Personality

Emotional intelligence AND Occupational psychology

Emotional intelligence AND Personality traits

*Intelligence/ AND *Emotion/

PsycInfo

Emotional AND intelligence AND sex (abstract only)

Emotional AND intelligence AND gender (abstract only)

Emotional AND self-efficacy AND gender (abstract only)

Emotional AND self-efficacy AND sex (abstract only)

Cochrane Central Register of Controlled Trials

emotional intelligence* AND sex

emotional intelligence* AND gender

Campbell Collaboration

emotional intelligence AND gender

emotional intelligence AND sex

Systematic Review Appendix 2: Amended SIGN 50 Checklist for Quality Appraisal Tool

Author:		Year of Publication:	
Reason for rejection: 1. Paper not relevant to key question <input type="checkbox"/> 2. Other reason <input type="checkbox"/> (please specify):			
Checklist completed by:			
HYPOTHESES			
		In this study the criterion is:	
The study addresses an appropriate and clearly focused question (gender predicts trait Emotional Intelligence).	Well covered	Not addressed	
	Adequately addressed	Not reported	
	Poorly addressed	Other research question	
RECRUITMENT			
1.1	"Male" & "Female" are selected from comparable populations (no confounding variables).	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.2	Population type (adult, adolescent, child):		
1.3	Sample size?		Insufficient information
1.4	The study indicates how many of the people asked to take part did.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
1.5	How many dropped out before the study was completed?		Insufficient information
3.5	What is the inclusion criteria in the study?*		
++			
+			
-			
3.6	What is the exclusion criteria in the study?*		
++			
+			
-			
ASSESSMENT			
2.1	The outcomes are clearly defined (measures are appropriate)	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
2.2	Emotional intelligence scale used:		
2.3	Evidence from other sources is used to demonstrate that the method of outcome assessment is valid and reliable*	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
	*(scale psychometric properties	Cronbach's alpha range:	Not reported

	reported)?		
CONFOUNDING			
3.1	Potential confounders are identified and taken into account in the design and analysis*.	Well covered Adequately addressed Poorly addressed	Not addressed Not reported Not applicable
++			
+	Confounders:		
-			
STATISTICAL ANALYSIS			
4.1	Have confidence intervals been provided?		
4.2	Outcome 1:	Outcome 2:	Outcome 3:
	Measure:	Measure:	Measure:
	P value	P value	P value
	Upper CI	Upper CI	Upper CI
	Lower CI	Lower CI	Lower CI
	Primary outcome?	Primary outcome?	Primary outcome?
OVERALL ASSESSMENT OF THE STUDY			
5.2	Taking into account clinical considerations, your evaluation of the methodology used, and the statistical power of the study, are you certain that the overall effect is due to the study intervention?*	Yes (if no/unsure state why)	No Unsure
++			
+			
-			
2.4	Notes:		
++			
+	Overall Rating*		
-			
Section 3: Description of the Study			
3.2	How many sites are participants recruited from?		
3.3	From which countries are patients selected? (Select all those involved. Note additional countries after "Other")	<input type="checkbox"/> Scotland <input type="checkbox"/> UK <input type="checkbox"/> USA <input type="checkbox"/> Canada <input type="checkbox"/> Australia <input type="checkbox"/> New Zealand <input type="checkbox"/> France <input type="checkbox"/> Germany <input type="checkbox"/> Italy <input type="checkbox"/> Netherlands <input type="checkbox"/> Scandinavia <input type="checkbox"/> Spain <input type="checkbox"/> Other:	

Research Hypotheses

- 1) **Hypothesis 1:** Significant gender differences will exist in interpersonal and intrapersonal emotional intelligence.
- 2) **Hypothesis 2:** Emotional intelligence will be positively correlated with psychological well-being, and negatively correlated with depression and early maladaptive schema. Emotional intelligence, early maladaptive schema, gender and depression will partially explain the variance in psychological well-being.
- 3) **Hypothesis 3:** High emotional intelligence will weaken the inverse relationship between early maladaptive schema and psychological well-being. Similarly, low emotional intelligence will strengthen the inverse relationship between early maladaptive schema and psychological well-being.

Part II: Empirical Study

The Role of Emotional Intelligence on Psychological Well-Being and Early Maladaptive Schema in Adolescents

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Prepared in accordance with guidelines for Journal of Youth and Adolescence (notes for authors in Appendix 7)

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Word count: 6.780

Abstract

Background: Emotional intelligence (EI) and early maladaptive schema (EMS) have been found to be associated with psychological well-being (PWB; Salami, 2011), although the link between these variables remains unclear. **Aim:** This study investigated whether EI is significantly associated with EMS in adolescents, and whether EI moderates the relationship between EMS and PWB. **Method:** Two-hundred and forty-eight 14-16 year olds participated in a cross-sectional study to examine the relationships between EI, EMS, depression and PWB using Young's Schema Questionnaire (YSQ; Young & Brown, 1994), Wong and Law EI Scale (WLEIS; Wong & Law, 2002), Center for Epidemiologic Depression Scale for Children (CED-CS; Faulstich, Carey, Ruggiero, Enyart & Gresham, 1986) and Ryff's PWB Scales (R-PWBS; Ryff & Keyes, 1995). **Results:** EI was negatively correlated with EMS and depression, and positively correlated with PWB. Hierarchical regression showed that 66% of variance in PWB scores was explained by EI (.35), EMS (-.33) and depression (-.25). The hypothesised interaction between EI and EMS was insignificant; demonstrating that EI does not observably alter the relationship between EMS and PWB (-.059). Significant gender differences also exist between variables. **Discussion:** Results have positive implications for psychological theory and intervention, which are discussed. However, as EI does not appear to act as a buffer between EMS and PWB, further research is needed to fully understand the relationship between these variables.

Keywords: Emotional Intelligence, psychological well-being, maladaptive schema, adolescent, depression, gender

Defining Emotional Intelligence

Debate on the conceptual definition of Emotional Intelligence (EI) is ongoing, however this concept continues to contribute much to psychological research (Bar-On & Parker, 2000; Ciarrochi, Deane & Anderson, 2002). Two models of EI are prominent in the literature. Both attempt to describe the monitoring, appraisal and regulation of emotions in the self as well as the ability to appraise and respond to the emotions of others. 'Trait EI' is defined as self-perceived emotion-related information which are lower-order personality characteristics (Petrides, 2011). The 'ability EI' model describes EI as *"the ability to perceive accurately, appraise, and express emotion; the ability to access and/or generate feelings when they facilitate thought; the ability to understand emotion and emotional knowledge; and the ability to regulate emotions to promote emotional and intellectual growth"* (Mayer & Salovey, 1997, p. 10). Ability EI is objectively measured using performance-based tests (Mathews, Zeidner & Roberts, 2007), although there are some scales based on the ability model which measure self-reported EI (e.g. Wong & Law Emotional Intelligence Scale (WLEIS), Wong & Law, 2002). 'Trait' and 'ability' models are shown to be conceptually distinct (Matthews, Zeidner & Roberts, 2004), although both aim to measure interpersonal and intrapersonal aspects of appraising, monitoring and regulating emotion. Indeed, both trait and ability measures have shown important contributions to the area of mental health (e.g. Ciarrochi, Deane & Anderson, 2000) and in other settings (e.g. Joseph & Newman, 2010; Arora, Ashrafian, Davis, Athanasiou, Darzi & Sevdalis, 2010).

Emotional Intelligence and Mental Health

Recent research on trait EI has shown that levels of EI negatively correlate with depression and positively correlate with PWB and the ability to form relationships (Davis & Humphrey, 2012; Lopes, Salovey & Straus, 2003), suggesting that modern measures of EI have good convergent validity (Brackett & Mayer, 2003). Recent studies have demonstrated that low EI increases the risk of depression (Lloyd, Malek-Ahmadi, Barclay, Fernandez & Chartrand, 2012) and is associated with poor mental health in adolescents (Davis & Humphrey, 2012). It has also been demonstrated that individuals with high levels of EI obtain more positive gains from psychotherapy (Bar-On & Parker, 2000).

From a clinical perspective, understanding the role of EI in mental health could guide intervention in reducing emotional distress and relationship difficulties. A recent study investigated trait EI and its

effect on socio-emotional competence, with the hypothesis that EI would impact on peer relationship formation in adolescents (Frederickson, Petrides, Simmons, Hamarta, Deniz, & Saltali, 2009). Findings were consistent with those of Mavroveli and colleagues, in that low trait-EI was associated with reduced peer ratings of social competence (Mavroveli, Petrides, Rieffe & Bakker, 2007). This suggests that low EI may impact on trajectories of relationship difficulties and future longitudinal studies may illustrate this further. Of note, Mavroveli's study also showed that EI negatively correlated with depression, maladaptive coping and somatic complaints. These studies all support the hypothesis that trait-EI is associated with mental health, although the causal relationship between EI and mental health requires further investigation.

Emotional Intelligence from Early Experiences

Although there is evidence for the relationship between EI and mental health, the aetiology of self-reported EI is, as yet, unclear. It may be that very early experiences and parental modelling of emotion can explain individual differences in EI. Extrapolating from research on emotions relating to mentalisation and parental modelling of emotional expression, it may be hypothesised that EI is derived from early experiences. This further fits with the idea of trait-EI being related to, but distinct from, higher-order personality traits (Petrides, 2011; Salami, 2011). Of note, gender differences in EI have been noted in several studies, which also may be partially explained by parental responses (Salguero, Extremera & Fernandez-Berrocal, 2012). Social cognitive theory (Bandura, 1989) and gender schema theory (Bem, 1981) suggest that parents respond differently to males than females during observation of emotional expression and emotion appraisal, which may foster gender distinction in levels of EI (Mikolajczak & Luminet, 2007). Attachment has been widely linked to mentalisation (Fonagy, Bateman & Bateman, 2011), which has been associated with EI given clear links between parental modelling of emotion and appraisal of emotion in others (e.g. Allen, Fonagy & Bateman, 2008). Some neurological studies support a similar pathway for the development of EI, with indication of structural gender differences; although further evidence is required (Killgore, Weber, Zachary, Schwab, DelDonno, Kipman, Weiner & Rauch, 2012).

Early Maladaptive Schema

Another construct postulated to derive from early experiences are early maladaptive schemas (EMS; Young & Brown, 1994). These are defined as underlying themes related to the self, the world and

others, developed in childhood and maintained throughout life (Young & Brown, 1994). Studies of EMS show that negative core beliefs impact on levels of depression, anxiety and other mental health difficulties (Muris, 2006; Lumley & Harkness, 2007; van Vlierberghe, Braet, Bosmans, Rosseel, & Bögels, 2010). Young and colleagues identified eighteen core EMS, which can be measured through psychometrically valid self-report scales (Schmidt, Joiner, Young & Telch, 1995).

Roelofs, Onckels & Muris (2013) hypothesised a model showing that EMS partially mediated the link between attachment security and psychopathology in clinically referred adolescents with a range of difficulties. Hierarchical regression showed that attachment security and EMS explained around 40% of the variance in psychological symptoms in this population, with the EMS domain of self-control/discipline uniquely relating to anger and conduct difficulties. Domains of disconnection/rejection and abandonment/instability were particularly linked to peer difficulties and emotional problems. A longitudinal study measuring participants' attachment style in early childhood and adulthood showed that individuals with insecure ambivalent or insecure preoccupied attachment classification were more likely to present with EMS (Simard, Moss & Pascuzzo, 2011). This suggests that attachment experiences are likely to causally affect early-formed systems of core beliefs. As such, the development of EI and early maladaptive schemas (EMS) may be derived from similar patterns of interactions from birth, such as poor attachment and parental rearing style.

Schema and Emotion

EMS have also been shown to be directly associated with emotion regulation difficulties in patients with mood disorders (Csukly, Telek, Filipovits, Takacs, Unoka & Simon; 2011). One study suggested that self-schemas will impact on emotion differently, finding that people with low negative self-schema have difficulty in recognising and describing emotions as measured by an alexithymia scale (Baker, 2009). This study found that individuals with overly positive self-schema scores experience greater intensity of positive affect (Baker, 2009). This supplements previous research showing that individuals with low self-complexity have greater variability of affect, and high self-complexity buffers the effect of stress on depression (Linville, 1987). This suggests that those with more adaptive self-schemas will experience less negative emotional outcomes, which has implications for clinical practice.

The concept of "emotion schema" theorises that emotions implicitly comprise the cognitive content which leads to psychopathology (Greenberg & Safran, 1987). Similarly, Leahy (2007) suggests that it

is the appraisal of emotion patterns and coping strategies that impact on mental health, rather than the interpretation of events and content of thoughts. Based on this model of 'emotional schema', Leahy has devised the concept of 'emotional schema therapy', which is a meta-cognitive approach for assessing beliefs about emotion to allow the re-appraisal of patterns of emotions and coping strategies to improve mental health (Leahy, 2007). Given the well-accepted link between emotions and core beliefs as theorised in cognitive models (e.g. Beck, 1987), greater understanding of the mechanisms between cognition and affect is required. It may be that high emotional intelligence impacts on an individual's ability to adapt core beliefs in childhood and adolescence more easily.

Despite the apparent connections between EMS and core components of EI, to our knowledge only one study has specifically examined whether EMS correlates with EI. Karimi (2013) investigated the contribution of EI and EMS in propensity towards addiction in substance users and the general population, showing that EI and EMS predicted 58% of the variance, and that EI negatively correlates with EMS as hypothesised. However this study would have benefited from a more detailed exploration of variables, such as examining the association between EI and EMS by mediation or moderation analysis.

Hypotheses

It has been shown that PWB is related to EI (Salami, 2011), and that EMS are strongly associated with poor mental health (Muris, 2006). However further study is required to identify potential aetiological and maintaining factors in PWB in adolescents, in order to supplement psychological theory and intervention. This study aims to investigate the effect of self-reported EI on the relationship between EMS and PWB, in order to gain insight into possible contributors to psychological well-being in the general adolescent population.

As previous literature has demonstrated associations between EI and PWB (Salami, 2011); EMS and depression (Lumley & Harkness, 2007), and possible associations between EI and EMS (Karimi, 2013); it is hypothesised that a significant, linear association will exist between these variables in the adolescent population. As such, it is posited that EI, EMS and depression will contribute to levels of PWB; and that EI and EMS will impact on PWB even when depression is removed from the equation.

It is further hypothesised that gender will explain part of the variance in the model, based on research identifying gender-specific patterns of EI (e.g. Harrod & Scheer, 2005) and psychopathology (Compas, Oroson & Grant, 1993). Finally, it is hypothesised that EI and EMS will interact to affect PWB: it is predicted that high EI will weaken the relationship between EMS and PWB; given the effect of schema adaptability on emotion recognition and expression (Baker, 2009).

Method

Procedure and Ethical Considerations

A cross-sectional survey of third and fourth year pupils in secondary schools was undertaken across a wide geographical area in the northern region of Scotland. Ten schools were invited to take part in the study following ethical approval from the local authority education department, and the ethics committee representing the first author's institution. Four schools expressed interest during a follow-up telephone call and agreed to participate in the study. Schools were then contacted by telephone to arrange briefings for students at assembly, where verbal and written information was given to third and fourth year pupils. Pupils were also given a parent information sheet to take home to inform parents of the study. The researcher then arranged to disseminate questionnaires in Personal Health and Social Education classes approximately one week later, allocating time in class to complete questionnaires, with a consent form. Teachers were asked whether all pupils would be able to provide informed consent prior to dissemination. Students were advised that participation was non-compulsory and given written and verbal permission to opt-out, with an option of alternative classwork for those not wishing to participate. The researcher and class teacher provided assistance where required, and the class were asked to complete measures individually. Unique participant identifiers were used and completed questionnaires were checked for anonymity before being removed from the school. A list of accessible mental health resources was disseminated to pupils on completion. Schools were offered a workshop on mental health awareness in exchange for participation.

Measures

Emotional intelligence

The Wong and Law EI Scale (WLEIS; Wong & Law, 2002) was initially developed as an ability measure of EI. However, this scale is generally considered to be a trait EI measure, as the scale consists of subjective self-report items (Petrides, 2011; Joseph & Newman, 2010), highlighting the ambiguity in the EI field. This scale has been psychometrically validated and has been used with adolescents previously (Salami, 2011) with a Cronbach's alpha range of 0.84 to 0.93 (Law, Wong

&Song, 2004); which is indicative of good psychometric properties. This scale has also shown good incremental validity when compared with personality, and predictive validity with psychological well-being (Salami, 2011). The scale comprises sixteen items, encompassing four subscales which include: use of emotions (e.g. "I am a self-motivated person"), regulations of emotions ("I am quite capable of controlling my own emotions"), self-emotion appraisal (e.g. "I really understand what I feel") and others' emotional appraisal ("I am a good observer of others' emotions"). Participants respond using a seven point Likert scale, from "totally agree" to "totally disagree", with high scores suggesting greater EI.

Psychological Well-Being

Ryff's Scales of Psychological Well-being - Medium Form (RSPWB-MF; Ryff & Keyes, 1995) measures PWB across six dimensions: autonomy, environmental mastery, positive relationships, personal growth, purpose in life and self-acceptance; with high scores indicating positive well-being following reverse scoring for twenty-one items. Respondents choose their appropriate response on a 6-point Likert scale. A sample question from the autonomy scale is "I tend to be influenced by people with strong opinions", while "The demands of everyday life often get me down" is an example of environmental mastery. An example from the positive relationship with others dimension is "People would describe me as a giving person, willing to share my time with others", a personal growth example is "I gave up trying to make big improvements or changes in my life a long time ago ", a purpose in life example is "I sometimes feel as if I've done all there is to do in life "and a self-acceptance example is "I like most parts of my personality". The medium-length form (forty-two items) demonstrated a Cronbach's alpha of 0.90 in a study with adolescents (Salami, 2011), which was considered preferable to the low ratings of internal consistency of the short form, while being shorter than the original questionnaire featuring 84 items, by recommendation from the author (personal communication to first author, 2012).

Early maladaptive schema

The Young's Schema Questionnaire – Short Form 3 (YSQ-SF3, Young & Brown, 1994) measures EMS and is an updated version of the YSQ-SF2, which has been used extensively in research and demonstrates good psychometric properties (van Vlierberghe et al., 2010; with a Cronbach's Alpha

range of .80 to 0.92). This scale uses a six point Likert scale ranging from 'completely untrue of me' to 'describes me perfectly'. The YSQ-SF3 has eighteen subscales, measuring abandonment, mistrust, defectiveness/unlovability, failure to achieve, practical incompetence/dependence, vulnerability to harm or illness, enmeshment, subjugation, self-sacrifice, emotional inhibition, unrelenting standards, entitlement/superiority, insufficient self-control/self-discipline, admiration/recognition-seeking, pessimism/worry and self-punitiveness. Examples of questionnaire items include "If I can't reach a goal, I become easily frustrated and give up" (from the insufficient self-control/discipline subscale) and "Accomplishments are most valuable to me if other people notice them" (from the admiration/recognition-seeking subscale). High scores on the YSQ-SF3 indicate greater levels of maladaptive schema.

Depression

The Centre for Epidemiologic Depression Scale for Children (CED-CS; Faulstich, Carey, Ruggiero, Enyart & Gresham, 1986) is a screening measure of depression validated for ages 7 to 17, with good concurrent validity for adolescents. Studies report a Cronbach's alpha of .85 in adolescent populations (Chabrol, Montovany, Chouicha & DuConge, 2002). The questionnaire consists of twenty items and uses a four point Likert scale that participants tick to describe their mood over the preceding week. Responses range from 'not at all' to 'a lot'. Sample items include "I felt like I was just as good as the other kids" and "I felt sad". Here high scores indicate higher levels of distress.

Participants

The sample was drawn from a mixture of urban and rural settings. Four schools contributed a range of age-appropriate classes. Two hundred and forty-eight adolescents (114 females (mean age 14.4), 117 males (mean age 14.4) and 17 unreported sex) participated in the study. Specifically, one hundred and thirty-eight 14 year olds, eighty-two 15 year olds and only eleven 16 year olds (12 unreported age) took part. Two pupils in participating classes opted out of the survey due to questionnaire length. Sixty-two questionnaires were not fully complete, resulting in 186 questionnaires used in the final regression analysis. Information about ethnicity and socioeconomic status was not gathered in this study. Measures were shown to be reliable for the current population, with

cronbach's alpha range of .70 and .80 for the WLEIS, .74 to .76 for the YSQ, .91 for the RSPWB-MF and .76 for the CED-CS.

Sample size calculation

The estimated sample size for the hierarchical regression was calculated to be 163 using G*Power (Faul, Erdfelder, Buchner & Lang, 2009) considering recommendations by Green (1991). This was based on 22 predictors at alpha 0.05; considering the medium effect size of EI on PWB in previous studies (Salami (2011). Testing the interaction effect required a sample size of 111 (Aiken & West, 1991, p159; based on the estimated squared partial correlation from Salami, 2011). Testing the association between gender and EI required a sample size of 184; based on an effect size from study of EI and gender with an effect size of 0.37 (Schutte et al., 1998). This was also calculated using G*Power (Faul et al., 2009). As such, the total sample required 184 participants to examine the association between gender and EI, and 163 participants for the moderation analysis with 80% power.

Statistical Analysis

Due to the apparent association between EMS and mental health (Muris, 2006) and hypothesised links between EI, EMS and PWB, analysis was conducted to explore whether EI affects the relationship between EMS and PWB. Initially, correlation analysis between gender, EI, EMS, depression and PWB were conducted, following evaluation of data distribution. The effect of depression as a confounding variable was tested using partial correlation analysis and subsequent mediation analysis. A second mediation analysis was employed in order to find whether EI mediates the relationship between early maladaptive schema and psychological well-being. Mediation analyses were conducted using a macro for SPSS (Hayes, 2013).

Additive effects of EMS, EI and gender on PWB were then explored to test the hypothesis that EI and EMS would affect PWB in adolescents by means of hierarchical multiple regression. The interaction between EI and EMS on PWB was examined to find whether EI strengthened or weakened the relationship between EMS and PWB using moderation analysis, based on Aiken and West's procedure (Aiken & West, 1991). Gender differences between core variables and EI subscales were

examined using correlation analysis, in order to test the hypothesis that significant gender differences on EI subscales would be present. All data were analysed using SPSS version 19.0.

Results

Data Analysis

Various assumptions for inferential statistics must be satisfied prior to testing (Spicer, 2005). Absent data was evaluated to be missing at random. Visual inspection of normal probability plots and normality statistics demonstrated that all core variables except depression were normally distributed, with no homoscedasticity, skew or kurtosis (Spicer, 2005). The depression data-set required logarithmic transformation due to high levels of kurtosis. Checks on residuals highlighted three influential outliers larger than three standard deviations from the mean. Outliers were examined and excluded, as there was no theoretical reason to suggest removal may have biased results. Analysis without outliers revealed slight change in the model; with a slightly stronger contribution of EMS and EI in the regression equation following outlier removal ($r^2=.59$, $p<.001$, outliers retained; and $r^2=.61$, $p<.001$, outliers removed).

Inspection of visual plots demonstrated acceptable linearity of variables on the dependent variable (PWB), and acceptable independence of errors (Tabachnick & Fidell, 2006). Multi-collinearity was not present for core variables. However large correlations demonstrating potential multi-collinearity and high tolerance and variation inflation factor values were demonstrated when EMS subscales were transformed and included in the regression (Spicer, 2005). EI subscales were of non-normal distribution and required non-parametric testing for correlation analysis.

Descriptive statistics and demographics

Descriptive statistics presenting the mean, standard deviation and range for core variables are presented in Table 1. Means and independent t-tests comparing gender and core variables are presented in Table 2.

Females showed a significantly higher rate of depression than males ($t(228)=7.705, p<.001$) and EMS ($t(192)=4.904, p<.001$), and lower PWB ($t(225)=4.901, p<.001$). There were also significant gender differences in EI, with males showing greater overall EI ($t(229)=2.430, p<.05$), which required further exploration. Normality testing demonstrated that EI dimensions conform to non-parametric criterion, which required Mann-Whitney tests to analyse the association between gender and EI subscales.

Subscale scores of the WLEIS show that females score significantly higher on 'others-emotion appraisal' ($U=8604, z=3.83, p<.001$). Males scored significantly higher on 'self-emotion appraisal' ($U=4581, z=4.12, p<.001$), 'use of emotion' ($U=5142, z=3.01, p<.001$) and 'regulation of emotion' subscales of EI ($U=4651, z=3.99, p<.001$). Associations between age and all variables were non-significant ($p>.01$ for all variables).

Table1 Means, standard deviations and range of core variables

<i>Variable</i>	<i>Mean (SD)</i>	<i>Range</i>	<i>N</i>
EI	79.4 (15.3)	40-109	244
EMS	239.2 (76.3)	107-423	198
Depression	19.0 (13.1)	0-56	247
PWB	167.6 (22)	113-222	231
Age	14.4 (0.58)	14-16	236

Table 2 Means, standard deviations and t-tests for gender and core variables

	<i>Males mean (SD)</i>	<i>Females mean (SD)</i>	<i>T</i>	<i>Sig</i>	<i>Effect size (r)</i>
PWB	174.9 (19.8)	161.2 (22.1)	4.901	.000	.31
EI	81.7 (15.9)	76.9 (13.8)	2.430	.016	.16
EMS	212.3 (69.1)	263.2 (75.2)	4.904	.000	.33
Depression	13.0 (9.1)	25.3 (14.2)	7.765	.000	.45

Table 3 Medians, means and Mann-Whitney tests between gender and EI dimensions

<i>EI Subscale</i>	<i>Males mean (SD)</i>	<i>Females mean (SD)</i>	<i>Median Males</i>	<i>Median Females</i>	<i>U</i>	<i>Z</i>	<i>Sig</i>
EI Self-Emotion Appraisal	22.9(4.6)	20.7(4.4)	24	22	4581	4.122	.000
EI Others Emotion Appraisal	19.1(4.8)	21.4(21.2)	19	22	8604	3.827	.000
EI Use of Emotion	19.9(5.0)	18.3(4.9)	21	19	5142	3.009	.000
EI Regulation of emotion	19.5(5.8)	16.6(5.7)	21	17	4651	3.995	.000

Bivariate analyses

Pearson's correlation analyses were conducted in order to see whether significant associations exist between variables. PWB and EI were positively correlated ($r=.646, p<.001$), as were depression and EMS ($r=.681, p<.001$). EI was negatively correlated with EMS ($r=-.511, p<.001$) and depression ($r=-.553, p<.001$). PWB was negatively correlated with depression ($r=-.665, p<.001$) and EMS ($r=-.660, p<.001$). This supports the hypothesis that significant association exists between all core variables.

Due to the high correlation between depression and the other variables, partial correlation analysis was employed to ensure that depression did not have too large a control over PWB, EI and EMS. Controlling for the effects of depression showed a weaker, yet still statistical significant correlation between variables ($p<.05$ for all variables). This demonstrated that EI and EMS were additive to the model above and beyond depression.

Table 4 Correlations between core variables

	PWB	EI	EMS
EI	.646**	X	
EMS	-.660**	-.511**	X
Depression	-.665**	-.553**	-.681**
Gender	-.209**	-.144*	.195**

Multivariate analyses

Mediation analyses

Mediation analysis was conducted in order to further explore the effect of depression and EI, given the high correlations between core variables using Bootstrapping procedures set at 1000 samples (Preacher & Hayes, 2004). Two mediation analyses were calculated using PWB as the outcome variable, given the hypothesised influence of both EI and Depression on the relationship between EMS and PWB (see Fig. 1). Indirect effects are presented in Table 4.

Fig. 1 Mediating relationships of EI and Depression with hypothesised moderated effect

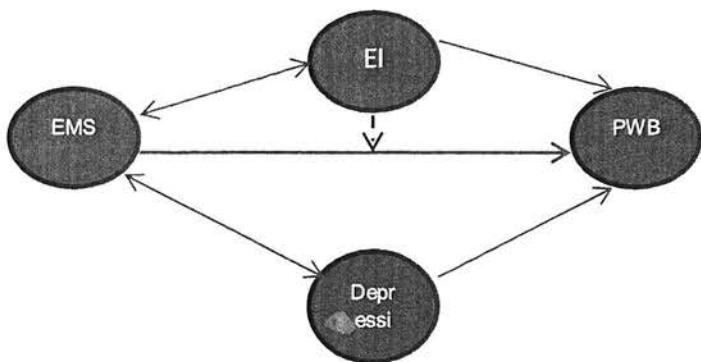


Table 4 Indirect effects with 95% confidence intervals

Model Pathway	Estimated Effect	Lower CI	Upper CI
EMS→ Depression→ PWB (controlling for EI)	-.046	-.081	-.029
EI→Depression→PWB (controlling for EMS)	.114	.051	.292
EMS → EI → PWB (controlling for depression)	-.021	-.040	-.003
EI→ EMS→PWB (controlling for depression)	.065	.006	.132

Depression partially mediated the relationship between EMS and PWB (indirect effect=-.046, SE=.013, z=-.3.51, $p<.05$), and between EI and PWB (indirect effect=.114, SE=.038, z=3.01, $p<.05$

(Table 4). EI was also found to partially mediate the relationship between EMS and PWB (indirect effect=-.021, $SE=.0095$, $z=$, $p<.05$), and EMS to partially mediate the relationship between EI and PWB (indirect effect=.065, $SE=.032$, $z=2.01$, $p<.05$). Significant direct effects were found between variables as hypothesised.

Moderation analyses

A moderated hierarchical multiple regression analysis was then conducted, using PWB as the dependent variable and gender, EI, EMS and depression as independent variables. In line with the procedure developed by Aiken & West (1991), core variables were centred by subtracting the mean of variables for each value in order to perform moderation analysis. The product term of EI multiplied by EMS was then created as the moderator variable. Gender was 'effects' coded (males coded '1' and females coded '-1'), based on recommendations by Frazier, Tix & Barron (2004). EMS subscales retained multi-collinearity problems even when centralised and thus could not be used in the regression equation, leaving four contributor variables. Gender, EI, EMS and depression were entered into regression analysis on PWB in the initial step. The moderator variable was then entered at step 2 (presented in table 4).

Gender, EI, EMS and depression at step 1 explained 64% of variance in PWB, with gender being insignificant ($F(4,180)=80.70$, $p<.001$; $r^2=.642$, $\Delta r^2=.634$). EI explained the greatest variance in the model ($\beta=.338$, $t(185)=6.638$, $p<.001$); followed by EMS ($\beta=-.327$; $t(185)=-5.375$, $p<.001$); and depression ($\beta=-.291$, $t(185)=-4.527$, $p<.001$).

Inclusion of the moderator variable slightly increased the model fit at step 2 ($F(5,179)=65.76$, $p<.001$; $r^2=.65$, $\Delta r^2=.637$). However, the moderator variable was insignificant ($\beta=-.059$, $t(184)=-1.888$, $p>.05$), demonstrating that EI does not significantly alter the relationship between EMS and PWB. As such, a second hierarchical regression equation was conducted to enable the regression equation to show first-order effects (Frazier, Tix & Barron, 2004). This regression is presented in table 5; showing that EI, EMS and depression represent 66% of the variance in levels of PWB, with gender insignificant ($F(4,180)=71.86$, $p<.001$).

Table 4 Hierarchical multiple regression analysis using centralized variables with interaction term.

Step		r^2	Δr^2	Std. Error	B	T	P
1	(168.407)	.642	.634	13.466		169.34	.000
	Gender				-.053	-1.082	.281
	EI				.338	6.638	.000
	EMS				-.327	-5.375	.000
	Depression				-.291	-4.527	.001
2	(167.739)	.647	.637	13.407		156.206	.000
	Gender				-.073	-1.607	.237
	EI				.347	6.808	.000
	EMS				-.325	-5.365	.000
	Depression				-.299	-4.650	.000
	EI* EMS				-.059	-1.188	.110

Table 5 Hierarchical regression of non-centralised variables of predictor variables on PWB.

Step		r^2	Δr^2	Std. Error	β	T	P
1	(161.139)	.66	.652	8.187		19.683	.000
	Gender				-.053	-1.164	.246
	EI				.351	6.825	.000
	EMS				-.333	-5.136	.000
	Depression				-.251	-3.528	.001

Discussion

Relationships between EI, EMS, depression and PWB

As anticipated, results show that both EI and EMS play a significant role in PWB, and a significant association exists between all variables. The hypothesis that EMS and EI are negatively correlated in adolescents has been confirmed for the first time in research. This is consistent with findings that EMS are closely related to emotion recognition (Csuckly, Telek, Filipovits, Takacs, Unoka & Simon, 2011). Multiple mediating effects and high correlations between variables suggest that there is considerable convergent validity between these measures. This may be expected, given the previously demonstrated relationship between key constructs in EI and EMS such as the personality-trait Neuroticism (Petrides & Furnham, 2001, Thimm, 2010) and depression, as is also demonstrated in our findings (Schutte, 1998; Lumley & Harkness, 2007). Recent research has shown that self-report EI has adequate incremental validity over personality (Brackett & Mayer, 2003) and depression (Petrides, Perez-Gonzalez & Furnham, 2007).

Further exploration of the variance of EI, EMS and depression in explaining PWB involved hierarchical regression, which explained 66% of the variance in PWB. This suggests that both EI and EMS are significant factors in understanding PWB in adolescents, with EI partially mediating the relationship between EMS and PWB. Depression partially influences the relationship between EI and PWB, as well as the relationship between EMS and PWB, with significant indirect effects. As such, depression should be considered a confounding variable. However, EI and EMS still impact on PWB when depression is withdrawn from the equation, demonstrating that EI and EMS contribute over and above depression.

The interaction effect between EI and EMS on PWB was insignificant; rejecting the hypothesis that high levels of EI will alter the relationship between EMS and PWB. This suggested that EI did not appear to act as a buffer on PWB for individuals with high levels of maladaptive schema, so the relationship is yet to be explained. However, EI and EMS may independently contribute to PWB.

Given the hypothesised idea that EI and EMS are developed through similar experiences, further exploration of the relationship between these variables is required. For example, it may be that attachment mediates the association between EI and EMS, supplementing research by Roelofs et al.

(2013). Studying these variables in the clinical population may also provide interesting results. Findings support the idea that EI follows a developmental trajectory which is affected by environmental influences (Zeidner, Matthews, Roberts & McCann, 2003), due to its significant association with EMS which are derived from early experiences (Young, 1990).

Gender differences

This study has shown that there is a further significant correlation between gender and all variables, although gender was not predictive in the regression equation. Females report higher rates of depression symptomatology, EMS and lower PWB, which echoes previous findings in the literature (e.g. Compas, Orosen & Grant, 1993). The increased prevalence of psychopathology in females is yet to be fully explained; however gender-typed coping skills, socio-cultural roles and a hypothesised greater prevalence of exposure to adverse life events have been discussed as potential causes for this finding (Nolen-Hoeksema, 2001; Piccinelli & Wilkinson, 2000).

Findings demonstrate increased competence in self-control of emotions in males, which has been shown throughout research (e.g. Harrod & Scheer, 2005). This may associate with previous findings that males generally have lower EMS (Shorey, Anderson & Stuart, 2012) and lower depression scores than females (Nolen-Hoeksema, 2001). Administering EI questionnaires to populations associated with EMS, such as individuals who have previously experienced adversity (Lumley & Harkness, 2007), as well as examining gender differences in EI dimensions, may shed light on this issue.

Emotional Intelligence and Gender

Considering the results of the gender differences in EI give surprising results. Our findings suggested that males have greater levels of EI on global subscale scores, which is not with consistent with the majority of literature (Martins et al., 2010); although some research has shown superior EI in males (Mikolajczak & Luminet, 2007; Wang & Kong, 2013). Results show that males score higher on intrapersonal scales (own emotion appraisal, use of emotions and relation of emotion subscales) consistent with previous findings (e.g. McIntyre, 2010). Further studies are needed to find whether this finding is replicable in a similar population or may be a feature of the measure used. More

expectedly, females demonstrate greater ability in appraising others' emotion, which generally supports previous research (e.g. Siu, 2009).

Several authors have attempted to understand gender profiles for emotion, with the most predominant explanation of gender differences in EI stemming from research on gender distinctions on the parental socialisation of emotional understanding and regulation (Bar-On & Parker, 2000). This lends support to the theory that EI is rooted in environmental antecedents (Fernandez-Berrocal, Salovey, Vera, Extremera & Ramos, 2005). Further studies are required to shed further light on the role of gender on EI.

Strengths and Limitations

Whilst this research has contributed to the literature in identifying the relationship between EI, EMS, depression and their impact on PWB in adolescents, it is important to address the limitations of the study. Primarily, the overlapping nature of the variables given their high correlations and multiple mediating effects may have led to a high degree of collinearity, making it difficult to fully understand the complex relationships between the variables.

Further information such as socioeconomic status, coping style and social support may have further provided useful information, as these may affect levels of EI (Harrod & Scheer, 2005; Hogan, Parker, Wiener, Watters, Wood & Oke, 2010). The study may have also benefited from a wider age group. The mid adolescent population was selected due to the limited focus on this age group in EI research (Davis & Humphreys, 2012), as well as the need for understanding PWB for adolescents who are at a vulnerable developmental stage (Noom, Dekovic & Meeus). However, the developmental stage of participants may have been problematic due to individual differences in the development of identity (Erikson, 1968) and emotional autonomy in mid-adolescence (Noom et al., 1999). Furthermore, theorists of EI have mixed views as to whether EI remains generally stable over time (Matthews, Ziedner & Roberts, 2007), although EI training has shown to improve levels of both ability and trait EI (Nelis, Quoidbach, Mikolajczak & Hansenne, 2009; Ruiz-Aranda, Castillo, Salguero, Cabello, Fernandez-Berrocal & Balluerka, 2012).

Although each measure was selected due to good internal reliability and validity, there may be difficulties with these instruments. Discriminant analysis is needed to further analyse whether EI

instruments are able to provide accurate measures of distinct, psychometrically valid concepts. Little research has been conducted on the discriminant validity of the majority of EI measures, causing difficulties with validation of the self-report EI construct. However, Joseph and Newman (2010a) demonstrated discriminant validity of the WLEIS scale from the five factor model of personality, although they reported high latent correlations between WLEIS dimensions and certain personality traits. As such, further research should consider the utilisation of personality measures alongside these variables. Literature on the specificity of EI measures is sparse; and it may be that the WLEIS has assessed a false positive in these findings. However, the WLEIS demonstrated specificity for mental health disorders in a study on adolescents and mental health (Davis & Humphreys, 2012).

The CED-CS is a depression screening tool and cannot give an accurate measure of depression due to its brevity, thus 'depression' should be interpreted with caution and may be viewed as a measure of emotional distress rather than a diagnostic measure (Fendrich, Weissman & Warner, 1990). In contrast to the CED-CS's brevity, the length of the YSQ-SF3 (ninety items) resulted in some attrition. Some items seem designed for more mature developmental stages (e.g. "no man/woman I desire could love me once he or she saw my defects or flaws"), and several adolescents queried the meaning of certain items during completion. Whilst this measure has previously been used successfully with adolescents, some of the items may not be as relevant for this age group as for the adult population. Sample size was reduced due to missing values, although the sample size met power according to apriori calculations.

Perhaps a larger difficulty with this study is the problematic issue of measuring EI in the first place. EI continues to be a debated topic, with much disagreement over the constructs of EI. Critics of trait EI debate whether self-report measures are able to contribute anything of value (e.g. Matthews et al., 2007). However there have been numerous studies showing that self-report measures of EI show convergent and incremental validity, and it is generally accepted that EI is a worthwhile construct to explore, given its contribution in several areas (Bar-On & Parker, 2000). Recent studies have shown that self-report EI measures have incremental validity above and beyond personality (Davies & Humphreys, 2012). Furthermore, EI measures have shown strong associations with mental health outcomes, including PWB (Salami, 2011) and stress (Ciarocchi, Deane & Anderson, 2002).

Of note, the WLEIS considers itself a measure of EI ability, due to having been based on a performance measure and therefore using the four-dimensional principle of ability EI developed by Mayer and Salovey (1997; Wong & Song, 2002). However, several authors such as Perez et al. (2005) and Arora et al. (2010) class the WLEIS as a trait EI measure, due to its self-report nature, arguing that self-report measures must be based on judgement (and therefore conform more to the trait-EI model).

Indeed, one meta-analysis highlighted that the WLEIS as a self-report ability measure does not show convergent validity with performance-based ability measures (Joseph and Newman, 2010). Research has also shown the WLEIS to positively correlate with personality traits and psychological well-being (Salami, 2011) which does not fit with definitions of the ability model. This again suggests that the WLEIS is more similar to a 'mixed' or 'trait' EI scale (Joseph & Newman, 2010). To reduce such ambiguity, this study may have benefitted from employing a second measure of trait EI, such as the Trait Emotional Intelligence Questionnaire (adolescent form), which has been shown to have good incremental validity in outcomes of adolescent mental health (Petrides, 2011). However given the length of alternative EI scales, as well as the apparent utility of the WLEIS (e.g. Salami, 2011), it was decided that the WLEIS would be an effective measure of EI, whilst contributing to the evidence base of this tool.

A strength of the study was having sampled across a wide demographic by including urban and rural schools incorporating a range of socioeconomic status areas, with two schools identified as the most demographically representative in the area. The utilisation of a depression measure as a confounding variable is also viewed as a strength. Additionally, there was a relatively small amount of non-participation compared with other studies (e.g. Donmeyer, Baum, Hanna & Chapman, 2004).

Clinical Implications and Directions for Future Research

Results suggest that assessment of EI and EMS levels are important in identifying the correct intervention, as apparently effective therapeutic interventions exist for improving both EI (Ruiz-Aranda et al., 2012) and improving EMS (Masley, Gillanders, Simpson & Taylor, 2012). Future studies require further analysis of sensitivity and specificity for measures of EI, in order to identify the applicability of EI measures, particularly when considering the clinical population.

There is a need for taking a full developmental history in mental health settings to provide targeted intervention (Carr, 2013). Assessment of EMS may be particularly beneficial in clinical practice, given that even those with high EI can still experience poor PWB. Given the effect of EI on PWB, fostering EI through early intervention may be effective in improving the well-being of adolescents (Ruiz-Aranda et al., 2012). The mechanisms underlying Greenberg and Leahy's theories of emotional schema (Greenberg & Safran, 1987; Leahy, 2002) have as yet to be explained. Research examining the relationship between potential, alternative additive variables such as attachment, coping and life stressors alongside EMS and EI may prove useful in further understanding PWB in adolescence.

Our results provide valuable information for considering appropriate psychological intervention. Solely targeting emotional understanding and regulation will not alter core beliefs in the general adolescent population. However, although cause and effect cannot be verified by the results of this study, results suggest that higher EI generally enhances PWB, suggesting that interventions fostering EI in the general population are worthwhile. It may be that individuals with insecure attachment or neglectful parenting (noted antecedents for EMS) require schema-focussed interventions, such as schema therapy (Young, Klosko & Weishar, 2003). Combined emotion-focussed and cognitive work may be particularly beneficial for individuals with poor mental health, due to the high correlation between EI and EMS. Additionally, the knowledge that EI correlates with EMS in adolescents independently from depression, provides some support for the hypothesis that EI could originate from a similar background to EMS. Should this be the case, preventative attachment-focussed work in the early years may reduce the likelihood of forming EMS and increase EI, which in turn may improve PWB.

Conclusions

This study provides support for the idea that EI and EMS each impact on PWB; demonstrating the additive variance of these constructs in relation to an aspect of mental health. No study to date has considered a mediating or moderating relationship between EI and EMS and its effect on well-being. This study has demonstrated that there is no clear interaction between EI and EMS on adolescent PWB, although they are highly correlated. EI partially mediates the relationship between EMS and PWB, although the causal direction remains ambiguous, given the difficulties with untangling these constructs. Results demonstrate that EI and EMS contribute to levels of PWB in adolescents, and supports previous findings of gender differences in relation to depression, EMS, PWB and dimensions of EI.

Conflict of interest

The authors declare that they have no conflict of interest.

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Appendix 1: University of Edinburgh ethics approval confirmation



SCHOOL OF HEALTH IN SOCIAL SCIENCE
CLINICAL PSYCHOLOGY

The University of Edinburgh
Medical School
Doonway 6, Teviot Place
Edinburgh EH8 9AG

Telephone 0131 651 3969
Fax 0131 650 3891
Email submitting.ethics@ed.ac.uk

Eleanor Oswald

02 April 2013

Dear Eleanor,

Re: Psychological Well-being and Schema in Adolescence: The moderating role of emotional intelligence

Application for Level 2/3 Approval

Thank you for submitting the above research project for review by the Section of Clinical Psychology Ethics Research Panel. I can confirm that the submission has been independently reviewed and was approved on the 7th February 2013.

Should there be any change to the research protocol it is important that you alert us to this as this may necessitate further review.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'K. Gardner'.

Kirsty Gardner
Secretary
Clinical Psychology

Appendix 2: Education board ethics approval confirmation

The following email approving the research has been anonymised. This was obtained from the regional Head of Education on 20th December 2012.

RE: Research Permission Request - Emotional Intelligence, Beliefs and Psychological Well-Being in Adolescents

(Name removed) [name@board.gsx.gov.uk]

You replied on 04/01/2013 13:38.

Sent: 20 December 2012 08:33

To: Oswald Eleanor (NHS HIGHLAND)

This looks very interesting, Eleanor, and we are very happy to support you.

I've copied (Name Removed), Principal Officer, Additional Support Needs, in as she will be able to provide helpful background on work in this area in Highland.

Meantime, it would be helpful to know more about the schools you would like to contact - number, size, location etc.

Look forward to hearing from you.

Regards

(Name removed)

(Name removed)

Head of Education

The (Area removed) Council

-----Original Message-----

From: Oswald Eleanor (NHS) [mailto:eleanor.oswald@nhs.net]

Sent: 17 December 2012 20:36

To: (Name removed)

Subject: GSX: Research Permission Request - Emotional Intelligence, Beliefs and Psychological Well-Being in Adolescents

Appendix 3.1: Correspondence and information for Head Teachers

(CAMHS Address)

(Schools Address)

Date:

Dear

I am a Trainee Clinical Psychologist studying at The University of Edinburgh and undertaking my clinical experience within NHS (*area removed*). I am undertaking a research project looking at how Emotional Intelligence affects psychological well-being in adolescents.

Permission to contact high schools within the (*area removed*) area has been granted by (*name removed*), Director of Education and ethical approval for the study has been given by the University of Edinburgh. I am writing to ask if you would consider allowing me to recruit students to my research project from your school.

I have enclosed an information leaflet about the study, which outlines the rationale for the research and what participation would involve if you gave permission for your school to participate. As I would be present at all stages of the survey, there should be no demand on class teachers. If you wish, in return for allowing me to recruit from your school, I would be happy to offer a short workshop on mental health issues for teachers at in-service days or another time of your choosing. All participating schools can ask to receive a copy of the results when the study is complete, and will be acknowledged for their support in any publications.

Thank you in advance for taking time to read the attached information sheet. Please do not hesitate to contact me on the above details, should you have any queries regarding the study.

Yours sincerely

Eleanor Oswald

Trainee Clinical Psychologist

Supervised by: Dr Emma Burton, Clinical Psychologist & Dr Jill Cossar, Lecturer in Clinical Psychology

Research: Emotional Intelligence and Psychological Well-Being INFORMATION FOR SCHOOLS

Please take the time to read over this information sheet which explains more about the current study. Thank you for your consideration.

What is the purpose of the study?

This study is looking at how skills in recognising and understanding emotions affect well-being and beliefs in young people. This will help to increase our understanding of factors which affect adolescent mental health.

Do I have to take part?

Taking part is entirely at your discretion.

What will happen if I decide to allow my school to take part?

This study requires third and fourth year pupils to complete four questionnaires, which should take 20-25 minutes to complete. The researcher (Eleanor Oswald, Trainee Clinical Psychologist) can be present to disseminate and collect the questionnaires, as well as answer any questions pupils may have. These questionnaires ask about mood, understanding of emotions, negative beliefs and life satisfaction in general. If you decide to take part, I will arrange to meet with school staff to discuss the details of participation. It is suggested that pupils take home an information leaflet about the study with a parental opt-out form in case parents do not wish their children to take part. Consent will then be assumed if no opt-out form is received. Questionnaires would then be completed within school hours at a time nominated by individual schools.

What are the possible disadvantages and risks of my school taking part?

There are no anticipated risks in taking part. All questionnaires have been used extensively with adolescent populations and no ill-effects have been noted. The researcher will be on-hand at all times to support pupils, who will be able to signpost helpful organisations and answer any queries.

What are the possible benefits of my school taking part?

There will be no immediate benefits to individual students who participate in the study. Research on this topic will, however, contribute to helping us to understand more about what impacts on adolescents' well-being, which is important in helping young people with mental health difficulties and coping with stress.

Will everything in this study be kept confidential?

All stages of the process are anonymous: consent forms will be kept separate from all questionnaire responses. Parental information sheet and 'opt-out' forms will be distributed to all pupils one week prior to questionnaire completion, to ensure parental involvement in the study.

Who is organising and funding the research?

This project is organised, reviewed and funded by NHS Highland and the University of Edinburgh; with approval from the Highland Council Education Board.

How do I get classes involved?

The researcher will contact the school by telephone to ask whether you would be happy for your school to be involved in this study. To ensure minimal demands are placed on yourself and secretarial staff, please either complete the form below and return to the front office; or contact the researcher directly on Eleanor.oswald@nhs.net.

Contact for Further Information

You can contact **Eleanor Oswald** any time with questions or comments about the project, on **01469 705 597** or **Eleanor.oswald@nhs.net**.

Please return this slip to office staff or email the following information to Eleanor.oswald@nhs.net :

**Involvement in Research:
Study on Emotional Intelligence and Psychological Well-Being**

I **would / would not*** like my school to participate in this study.

Name: _____

Position: _____

Signature: _____

School: _____

Best contact method to arrange dates*:

Telephone	Email	Arrange dates with secretary
-----------	-------	------------------------------

*please circle as appropriate

Thank you for your time and consideration!

Appendix 3.2: Information sheet for parents

Research: Emotional Intelligence and Psychological Well-Being PARENT INFORMATION SHEET

3rd and 4th years are being invited to take part in a research study run through University of Edinburgh/NHS (area removed), and the school has agreed to take part. We would like to let you know why the research is being done and what it will involve.

Please read this information carefully, and ask us if there is anything that is not clear or if you would like more information about the study. Thank you for reading this.

What is the purpose of the study?

This study is looking at whether levels of "emotional intelligence" (how well we recognise and understand emotions) affects well-being and beliefs in young people, by asking students to complete questionnaires.

Do students have to take part?

Students decide whether they would like to take part, and parents are also given the option to 'opt-out' from young people participating. Students are advised they can stop participating at any time.

What will happen to students if they take part?

We have arranged a timeslot during an SE class for students to complete 4 questionnaires (about emotional intelligence, beliefs, mood and psychological well-being). Pupils will get 20-25 minutes in class to fill in these questionnaires. All these questionnaires are anonymous, and a consent form will be kept separate from questionnaire answers. School will receive a copy of the results when the study is finished.

What are the possible disadvantages and risks of taking part?

There are no risks in taking part, although it can take a bit of time. We'll give pupils 20-25 minutes in class to complete the questionnaires, which should be enough time. It is extremely unlikely the questionnaires will upset students, however the researcher will be on-hand at all times to support pupils, and to answer questions they may have.

What are the possible benefits of taking part?

Whilst there are no immediate benefits to individual students, research on this topic will contribute to helping us to understand more about what affects young people's well-being, which is important in helping young people with mental health difficulties, and helping young people cope with stress.

Will everything in this study be kept confidential?

Yes - none of the questionnaires will be identifiable, and consent forms will be kept separate from questionnaire answers.

Who is organising and funding the research?

This project is organised, reviewed and funded by NHS Highland and the University of Edinburgh.

For further information please contact **Eleanor Oswald** any time with questions or comments about the project, on 01899 705 597 or Eleanor.oswald@nhs.net. Please feel free to ask us if you would like more information, and take time to decide whether you wish to take part.

Thank you for your time and consideration!

Appendix 3.3: Information sheet for pupils

Research: Emotional Intelligence and Psychological Well-Being STUDENT INFORMATION SHEET

you are being invited to take part in a research study run through University of Edinburgh/NHS (area removed).

Before you decide it is important for you to understand why the research is being done and what it will involve. Please read this information carefully. Ask us if there is anything that is not clear or if you would like more information, and ask about whether you wish to take part. Thank you for reading this.

What is the purpose of the study?

This study is looking at whether levels of “emotional intelligence” (how well we recognise and understand emotions) affects well-being, mood and beliefs in young people, by asking students to complete questionnaires.

Do I have to take part?

It is up to you to decide whether to take part. If you do want to take part, you will be asked to sign a consent form and complete some questionnaires. You can stop at any time without giving a reason.

If you don't want to take part, you'll be given normal classwork to do.

What will happen to me if I take part?

During an SE class that we have arranged with your teacher, you'll be asked to complete 3 questionnaires (about emotional intelligence, beliefs and psychological well-being). You'll get 20-25 minutes in class to fill in these questionnaires. All these questionnaires are anonymous, so they won't have your name on – we won't have any way of knowing who completed which questionnaire. We'll also ask you to fill in a 'consent' form to make sure you know you can stop any time. Your school will get a copy of the results when the study is finished.

What are the possible disadvantages and risks of taking part?

There are no risks in taking part, although it can take a bit of time. We'll give you 20-25 minutes in class to complete the questionnaires, which should be enough time.

What are the possible benefits of taking part?

Mostly, There are no immediate benefits to you for taking part. However, this research will contribute to helping us understand more about what affects young people's well-being, which is important in helping people with mental health difficulties and coping with stress.

Will my taking part in this study be kept confidential?

Yes – none of the questionnaires will have your name on, except your consent form which will be kept separate from your questionnaire answers.

Who is organising and funding the research?

This project is organised, reviewed and funded by NHS Highland and the University of Edinburgh.

Contact for Further Information

*You can contact **Eleanor Oswald** any time with questions or comments about the project, on **01469 705 597** or elleanor.oswald@nhs.net. Please feel free to ask us if you would like more information, and take time to decide whether you wish to take part.*

Thank you for your consideration!

Appendix 4: Overview of questionnaire pack for research study

4.1 Pupil consent form

4.2: Wong and Law Emotional Intelligence Scale

4.3: Center for Epidemiologic Studies Depression Scale for Children

4.4: Ryff Scales of Psychological Well-Being Medium Form

4.5: Information on Young's Schema Questionnaire Short Form 3

4.6 Pupil resource supplement

Appendix 4.1: Pupil consent form

Research: Emotional Intelligence and Psychological Well-Being: CONSENT FORM

Please
tick box

1. I have read and understand the information sheet for this study.

☐

2. I understand that I am free to stop at any time, without giving a reason.
I know I do not have to complete these questionnaires.

☐

3. I understand that all data are completely anonymous.

☐

4. I've shown the information sheet to a parent/guardian.

☐

5. I agree to take part in the above study.
(please complete the information below)

☐

Thank you so much for your participation!

Signed: _____

School: _____

Appendix 4.2: Wong and Law Emotional Intelligence Scale
(Wong & Song, 2002)

Emotional Intelligence

Please circle the most appropriate answer from 1 'Totally Disagree' to 7 'Totally Agree'

	Totally Disagree				Totally Agree		
1. I have a good sense of why I have certain feelings most of the time.	1	2	3	4	5	6	7
2. I have good understanding of my own emotions.	1	2	3	4	5	6	7
3. I really understand what I feel.	1	2	3	4	5	6	7
4. I always know whether or not I am happy.	1	2	3	4	5	6	7
5. I always know my friends' emotions from their behaviour.	1	2	3	4	5	6	7
6. I am a good observer of others' emotions.	1	2	3	4	5	6	7
7. I am sensitive to the feelings and emotions of others.	1	2	3	4	5	6	7
8. I have good understanding of the emotions of people around me.	1	2	3	4	5	6	7
9. I always set goals for myself and then try my best to achieve them.	1	2	3	4	5	6	7
10. I always tell myself I am a competent person.	1	2	3	4	5	6	7
11. I am a self-motivated person.	1	2	3	4	5	6	7
12. I would always encourage myself to try my best.	1	2	3	4	5	6	7
13. I am able to control my temper and handle difficulties rationally.	1	2	3	4	5	6	7
14. I am quite capable of controlling my own emotions.	1	2	3	4	5	6	7
15. I can always calm down quickly when I am very angry.	1	2	3	4	5	6	7
16. I have good control of my own emotions.	1	2	3	4	5	6	7

Age: _____

Male ☐

Female ☐

Appendix 4.3 Center for Epidemiologic Depression for Children(Faulstich et al., 1986)

Mood Questionnaire

INSTRUCTIONS

Below is a list of the ways you might have felt or acted.

Please tick how much you have felt this way during the past week.

DURING THE PAST WEEK:	Not at all	A little	Some	A Lot
1. I was bothered by things that usually don't bother me	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. I did not feel like eating, I wasn't very hungry.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. I wasn't able to feel happy, even when my family or friends tried to help me feel better.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. I felt like I was just as good as other kids.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I felt like I couldn't pay attention to what I was doing.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
6. I felt down and unhappy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. I felt like I was too tired to do things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. I felt like something good was going to happen.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. I felt like things I did before didn't work out right.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. I felt scared.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. I didn't sleep as well as I usually sleep.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
12. I was happy.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13. I was more quiet than usual.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. I felt lonely, like I didn't have any friends.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. I felt like kids I know were not friendly or that they didn't want to be with me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. I had a good time.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
17. I felt like crying.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. I felt sad.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I felt people didn't like me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
20. It was hard to get started doing things.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Appendix 4.4 Ryff Scales of Psychological Well-Being Medium Form (Ryff & Keyes, 1995)

Well-Being and Life Satisfaction

Please circle the most appropriate number from 1 (strongly agree) to 7 (strongly disagree) for each statement.

1
2
3
4
5
6

Strongly agree
Somewhat agree
A little Agree
A little disagree
Somewhat disagree
Strongly disagree

	Strongly agree					Strongly disagree
1. I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.	1	2	3	4	5	6
2. In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
3. I am not interested in activities that will expand my horizons.	1	2	3	4	5	6
4. Most people see me as loving and affectionate.	1	2	3	4	5	6
5. I live life one day at a time and don't really think about the future.	1	2	3	4	5	6
6. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
7. My decisions are not usually influenced by what everyone else is doing.	1	2	3	4	5	6
8. The demands of everyday life often get me down.	1	2	3	4	5	6
9. I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6
10. Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6
11. I have a sense of direction and purpose in life.	1	2	3	4	5	6
12. In general, I feel confident and positive about myself.	1	2	3	4	5	6
13. I tend to worry about what other people think of me.	1	2	3	4	5	6
14. I do not fit very well with the people and the community around me.	1	2	3	4	5	6
15. When I think about it, I haven't really improved much as a person over the years.	1	2	3	4	5	6
16. I often feel lonely because I have few close friends with whom to share my concerns.	1	2	3	4	5	6
17. My daily activities often seem trivial and unimportant to me.	1	2	3	4	5	6
18. I feel like many of the people I know have gotten more out of life than I have.	1	2	3	4	5	6
19. I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
20. I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6

	1	2	3	4	5	6
	Strongly agree	Somewhat agree	A little agree	A little disagree	Somewhat disagree	Strongly disagree
	Strongly agree			Strongly disagree		
21. I have the sense that I have developed a lot as a person over time.	1	2	3	4	5	6
22. I enjoy personal and mutual conversations with family members or friends.	1	2	3	4	5	6
23. I don't have a good sense of what it is I'm trying to accomplish in life.	1	2	3	4	5	6
24. I like most aspects of my personality.	1	2	3	4	5	6
25. I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
26. I often feel overwhelmed by my responsibilities.	1	2	3	4	5	6
27. I do not enjoy being in new situations that require me to change my old familiar ways of doing things.	1	2	3	4	5	6
28. People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6
29. I enjoy making plans for the future and working to make them a reality.	1	2	3	4	5	6
30. In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6
31. It's difficult for me to voice my own opinions on controversial matters.	1	2	3	4	5	6
32. I have difficulty arranging my life in a way that is satisfying to me.	1	2	3	4	5	6
33. For me, life has been a continuous process of learning, changing and growth.	1	2	3	4	5	6
34. I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
35. Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6
36. My attitude about myself is probably not as positive as most people feel about themselves.	1	2	3	4	5	6
37. I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
38. I have been able to build a home and a lifestyle for myself that is much to my liking.	1	2	3	4	5	6
39. I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6
40. I know that I can trust my friends, and they know they can trust me.	1	2	3	4	5	6
41. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
42. When I compare myself to friends and acquaintances, it makes me feel good about who I am.	1	2	3	4	5	6

Appendix 4.5: Young’s Schema Questionnaire – Short Form 3 (Young & Brown, 1994)

The YSQ-SF3is protected by copyright and as such has not been included in this portfolio. Further information on this scale is presented in Part 2: Empirical Study. The following table presents the 18 core schema measured by the YSQ-SF3 alongside example questionnaire items.

To obtain a copy of this scale please go towww.schematherapy.co.uk/id4.htm

Core Schema	Example item from YSQ-SF3
Abandonment	I need other people so much I worry about losing them
Emotional deprivation	I don't have people to give me warmth, holding, and affection
Mistrust	I feel that people will take advantage of me
Social isolation/alienation	I don't belong, I'm a loner
Defectiveness/unlovability	No one I desire could love me once he or she saw my defects or flaws
Failure to achieve	Almost nothing I do at work (or school) is as good as other people can do
Practical incompetence/dependence	My judgement cannot be counted on in everyday situations
Vulnerability to harm or illness	I can't seem to escape the feeling that something bad is about to happen
Enmeshment	my parent(s) and I tend to be over-involved in each other's lives and problems
Subjugation	I think that if I do what I want, I'm only asking for trouble
Self-sacrifice	Other people see me as doing too much for others and not enough for myself
Emotional inhibition	I find it embarrassing to express my feelings to others
Unrelenting standards	I must be the best at most of what I do; I can't accept second best
Entitlement/superiority	I hate to be constrained or kept from doing what I want
Insufficient self-control/self-discipline	If I can't reach a goal, I become easily frustrated and give up
Admiration/recognition seeking	Accomplishments are most valuable to me if other people notice them
Pessimism/worry	I worry that a wrong decision could lead to disaster
Self-punitiveness	I'm a bad person who deserves to be punished

Useful Resources

Childline - An anonymous helpline for all children and young people who want someone to talk to. Also do Online Private Messaging and Email Chats.

Call 0800 11 11

[Childline.org.uk](https://www.childline.org.uk)

Guidance Teachers - Really useful people to talk to who can sort out school issues, provide a listening ear, and make referrals.

GPs - Can make referrals to support services like Child and Adolescent Mental Health Services

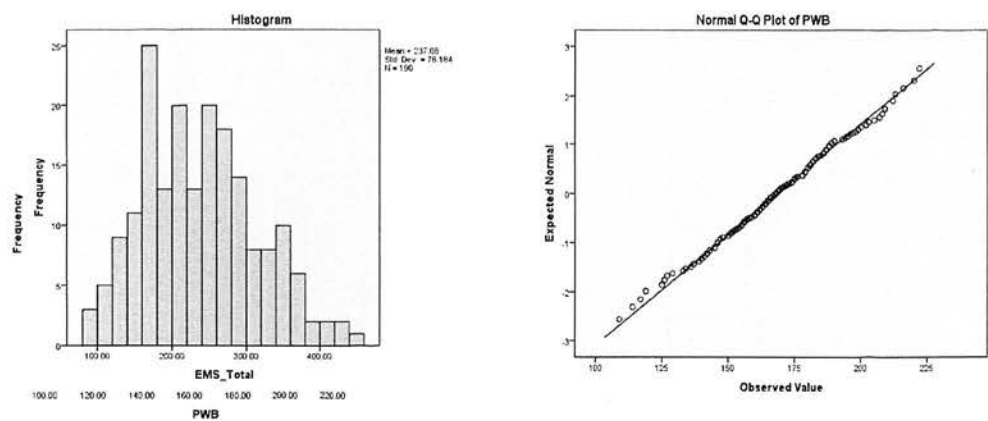
If you'd like to find out more about the Emotional Intelligence & Psychological Well-Being study, contact Eleanor.oswald@nhs.net

Appendix 5: Statistical Analysis Output

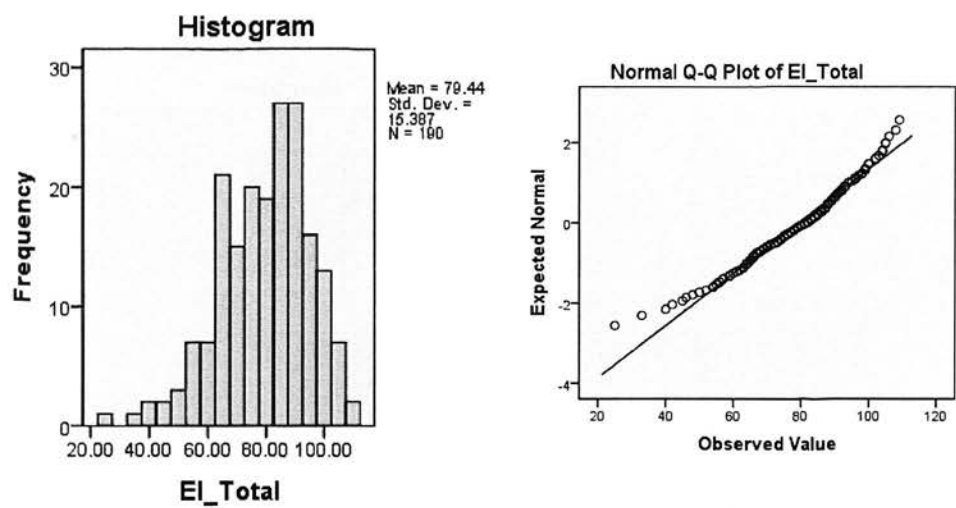
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<i>5.7 Reliability statistics (Cronbach's Alpha) of all scales</i>	<i>Page 116</i>

Appendix 5.1 Tests of normality for core continuous variables

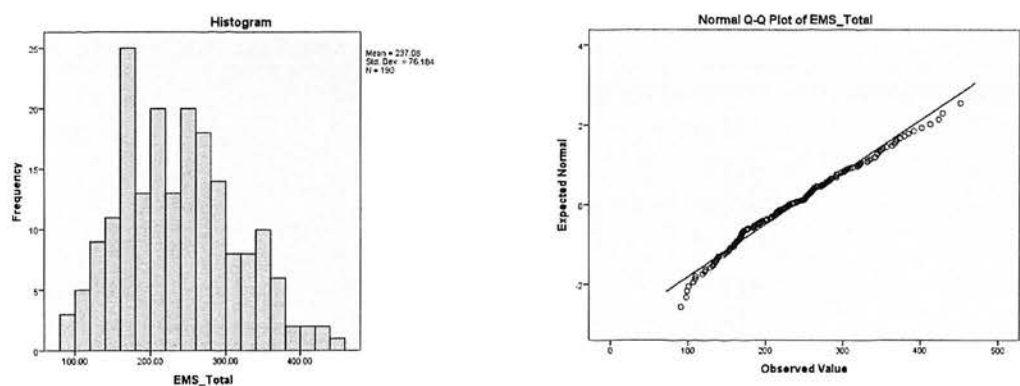
5.1.1 Histogram and QQ-Plot of PWB



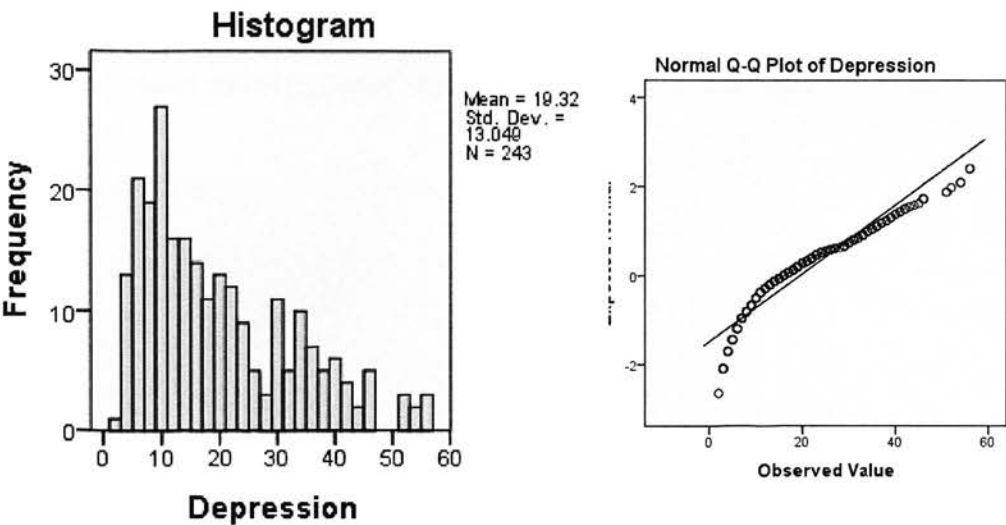
5.1.2 Histogram and QQ-Plot of EI



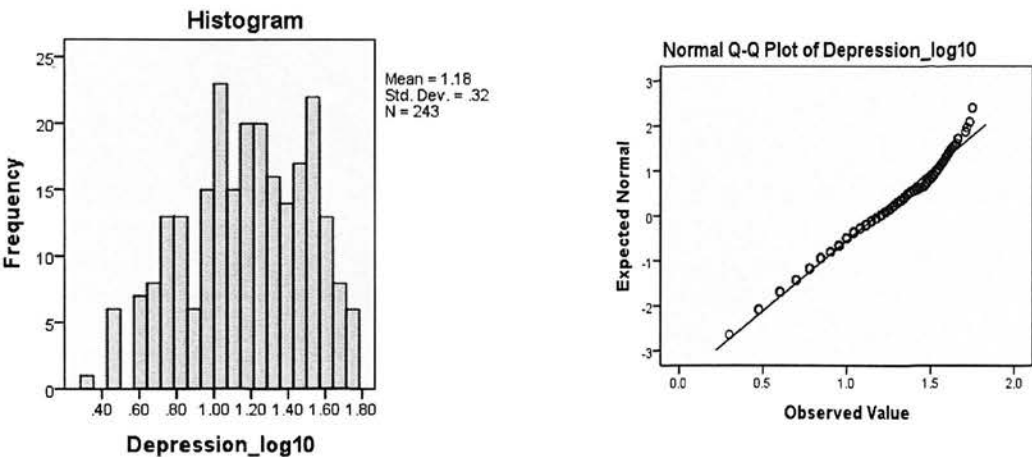
5.1.3 Histogram and QQ-Plot of EMS



5.1.4 Histogram and QQ-Plot of Depression



5.1.5. Histogram and QQ-Plot of Depression Transformed



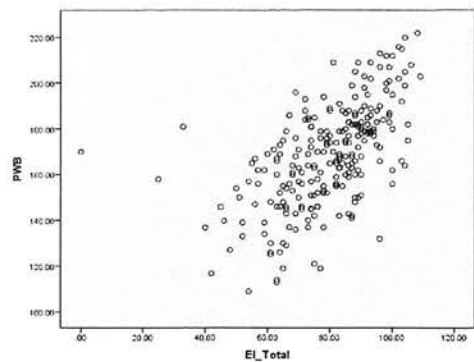
5.1.6 Normality statistics for all core variables

Table of normality statistics for all core variables

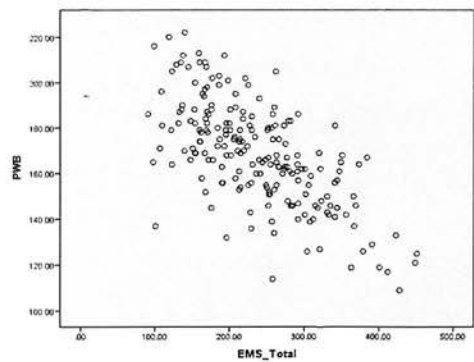
	Skew	kurtosis	std error skew	std error kurtosis	Shapiro-Wilk
Gender	0.064	-2.017	0.176	0.351	.000
PWB	0.066	0.063	0.176	0.351	.723
EI	-0.588	0.34	0.176	0.351	.002
EMS	0.372	-0.354	0.176	0.351	.015
Depression	0.885	-0.24	0.176	0.351	.000
Depression transformed	-0.266	-0.684	0.176	0.351	.001

Appendix 5.2 Tests of linearity and homoscedasticity for core continuous variables

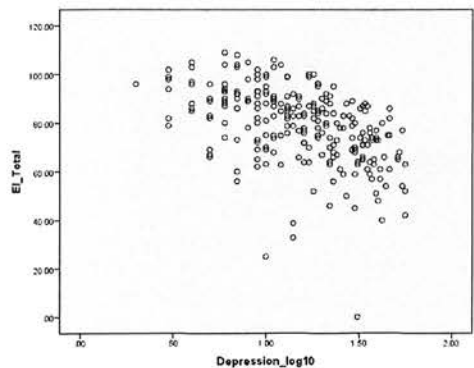
5.2.1 Scatterplot showing approximate linearity of EI on PWB



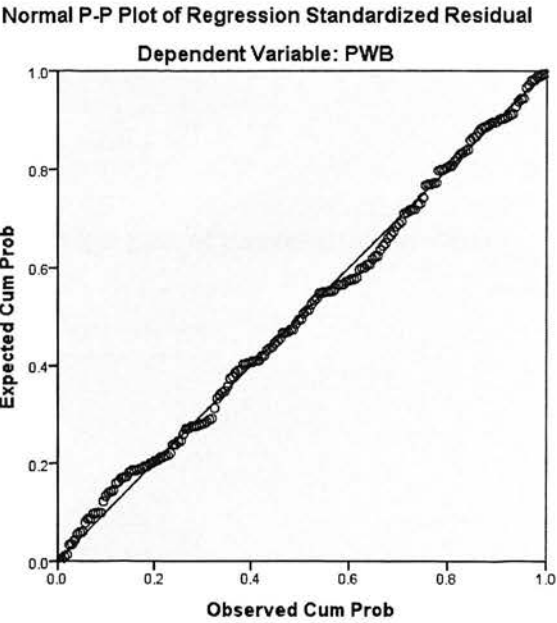
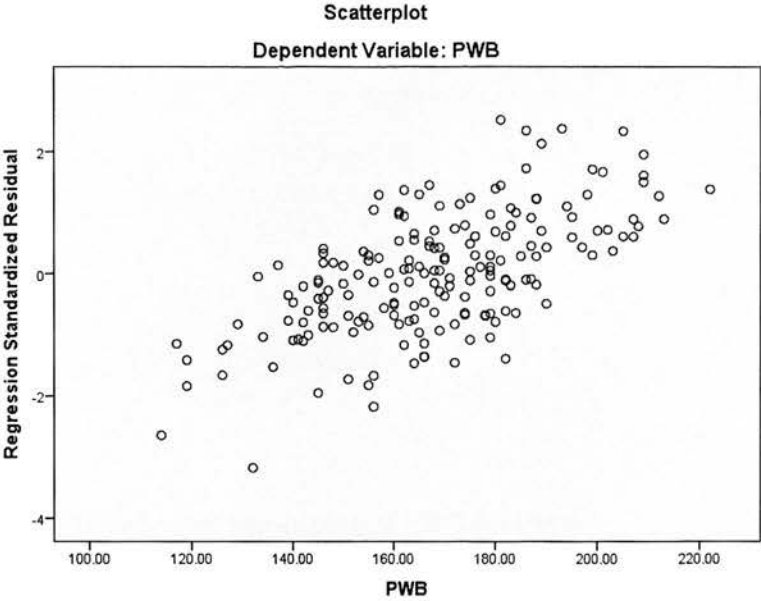
5.2.2 Scatterplot showing approximate linearity of EMS on PWB



5.2.3 Scatterplot showing approximate linearity of depression on PWB

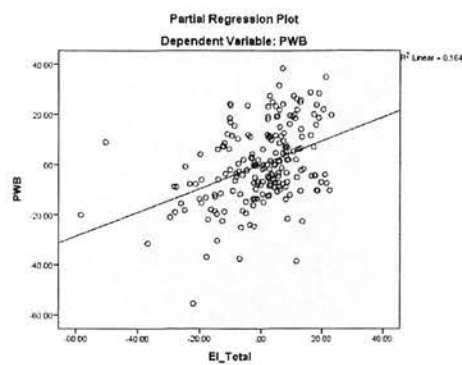


5.2.4 Scatterplot and PP- Plot of probable linear relationship between PWB and variables

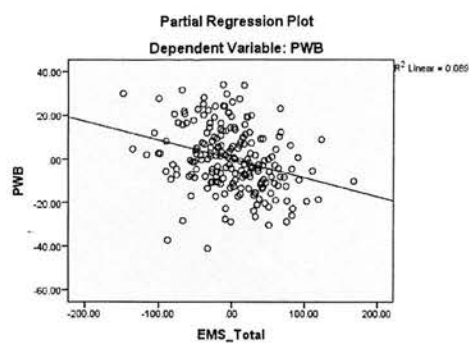


Appendix 5.3 Partial regression plots from regression analysis

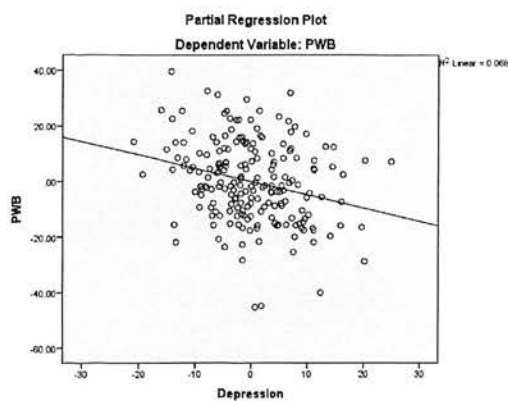
5.3.1 Partial regression plot of EI on PWB



5.3.2 Partial regression plot of EMS on PWB

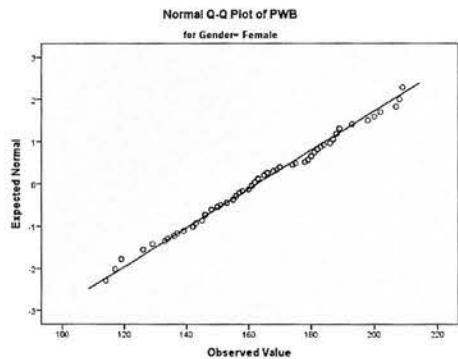
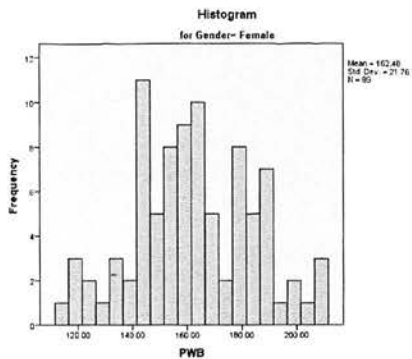
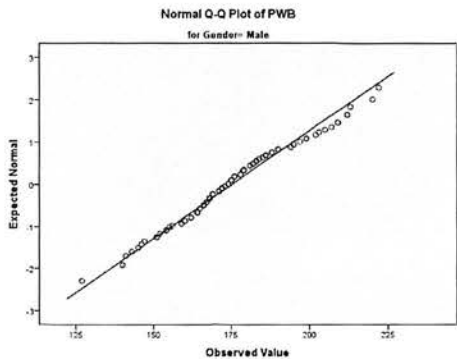
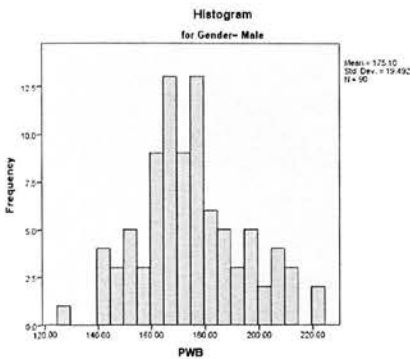


5.3.3 Partial regression plot of depression on PWB

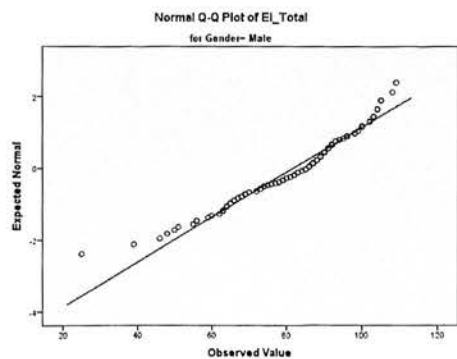
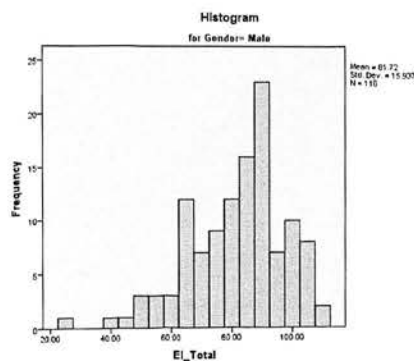
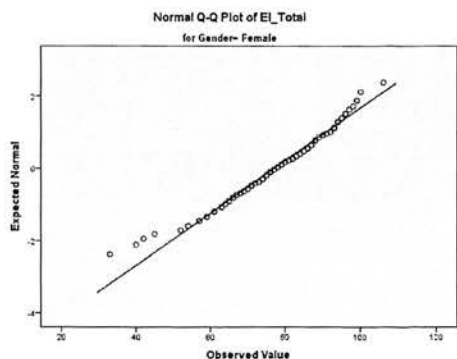
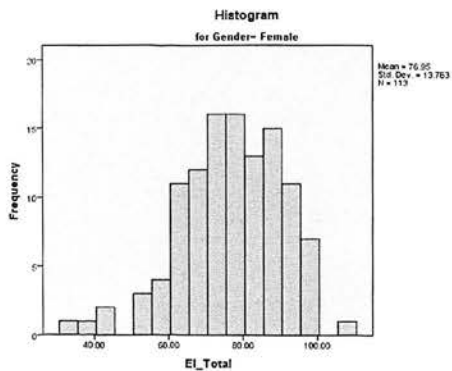


Appendix 5.4 Tests of normality and linearity of gender

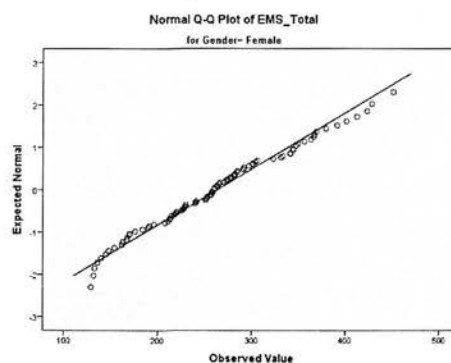
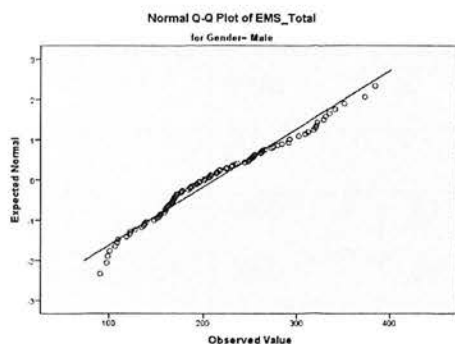
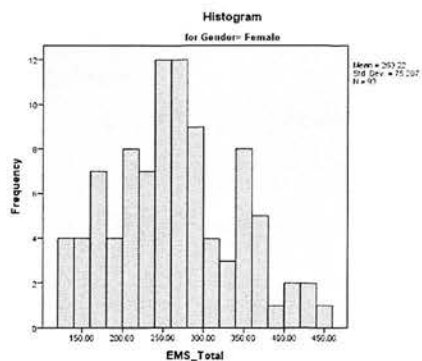
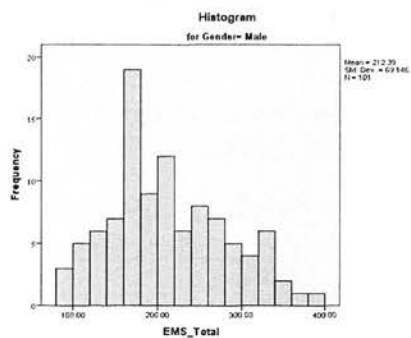
5.4.1 Histograms and QQ-Plots of gender on PWB



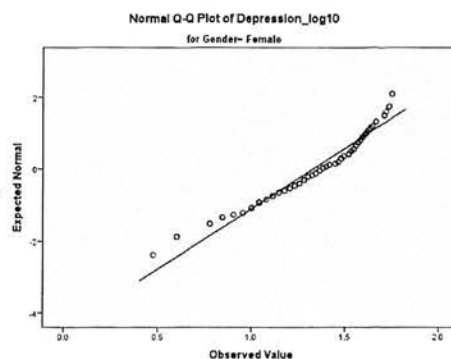
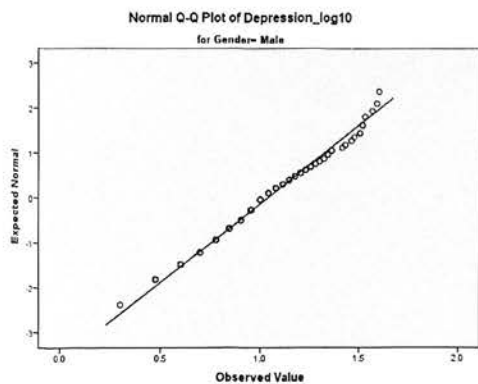
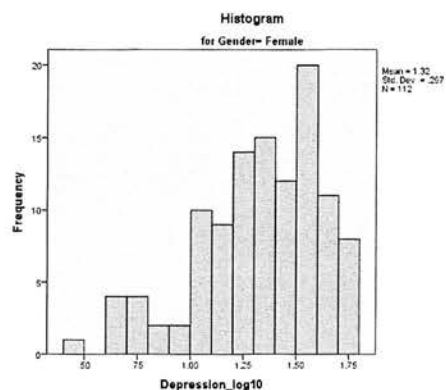
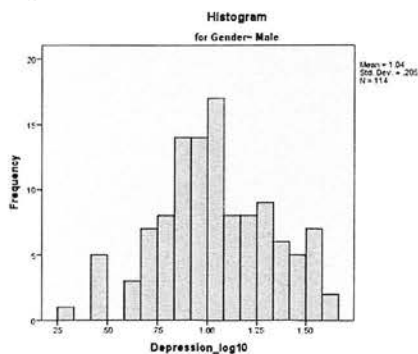
5.4.2 Histograms, QQ-Plots for gender and EI



5.4.3 Histograms and QQ-Plots for gender and EMS



5.4.4 Histogram and QQ-Plot of gender and depression transformed



Appendix 5.5: Correlations between variables with and without outliers

5.5.1 Correlations between all variables– outliers retained

	PWB	EI	EMS	Sig	Tolerance	VIF
EI	.583**	X		p<0.01	.709	1.410
EMS	.670**	-.459**	X	p<0.01	.425	2.355
Depression_log10	.697**	-.498**	.751**	p<0.01	.357	2.978

5.5.2 Correlations between core continuous variables– outliers removed

	PWB	EI	EMS	Sig	Tolerance	VIF
EI	.646**	X		p<0.01	.644	1.960
EMS	-.660**	-.511	X	p<0.01	.510	1.152
Depression_log10	-.665**	-.553	-.681	p<0.01	.422	2.372

Appendix 5.6 Descriptives and internal consistency statistics for EMS and EI

5.6.1 Descriptive statistics and Cronbach's Alphas for EMS and EI subscales

	Mean	SD	Range	Skew	Skew std err	Kurtosis	Kurtosis std error
EMS subscales							
Abandonment	11.9726	7.51995	30.00	.715	.164	-.181	.327
Emotional deprivation	11.0293	5.71454	25.00	1.051	.170	.424	.338
Mistrust	12.9805	6.24889	25.00	.778	.170	-.233	.338
Social isolation	12.8390	6.44954	25.00	.779	.170	-.214	.338
Defectiveness	12.2634	6.59834	25.00	1.012	.170	.452	.338
Failure to achieve	13.6927	6.60943	25.00	.614	.170	-.557	.338
Practical incompetence	13.0390	5.09791	25.00	.798	.170	.565	.338
Vulnerability to harm	11.1659	5.57848	23.00	.894	.170	-.077	.338
Enmeshment	10.3122	4.39475	19.00	1.130	.170	1.116	.338
Subjugation	12.6537	5.27034	24.00	.660	.170	-.088	.338
Self-sacrifice	14.1122	4.96479	22.00	.416	.170	-.383	.338
Emotional inhibition	13.2537	5.82625	24.00	.546	.170	-.413	.338
Unrelenting standards	15.6098	5.32050	25.00	.311	.170	-.277	.338
Entitlement/superiority	13.4049	4.41665	23.00	.369	.170	.236	.338
Insufficient self- control/self-discipline	14.5512	5.99457	41.00	.887	.170	2.642	.338
Admiration/recognition seeking	14.5415	5.54699	24.00	.247	.170	-.473	.338
Pessimism/worry	14.1951	6.52003	25.00	.474	.170	-.741	.338
Self-punitiveness	13.7171	5.77672	25.00	.899	.170	.309	.338
EI subscales							
Use of emotions	21.9312	4.59756	24.00	-.840	.155	.640	.309
Regulation of emotions	20.2672	4.63214	24.00	-.648	.155	.471	.309
Self-emotion appraisal	19.1781	5.10785	24.00	-.619	.155	-.065	.309
Other's emotion appraisal	18.1174	5.98630	24.00	-.525	.155	-.435	.309

Appendix 5.7 Correlations between core variables and EMS subscales

5.6.2 Correlations between variables and EMS subscales

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1 Gender	1																										
2 Depression	.344**	1																									
3 PWB	-.209**	-.692**	1																								
4 Age	0.031	-0.042	0.017	1																							
5 EI_Total	-.144*	-.565**	.659**	0.022	1																						
6 Use of emotions	-.160*	-.519**	.502**	-0.04	.751**	1																					
7 Regulation of emotions	.223**	0.057	.213**	0.025	.490**	.233**	1																				
8 Self-emotion appraisal	-.149*	-.407**	.535**	-0.025	.746**	.451**	.215**	1																			
9 Other's emotion appraisal	-.217**	-.588**	.554**	0.038	.832**	.593**	.202**	.550**	1																		
10 EmotDepr	.141*	.571**	-.547**	-0.058	-.377**	-.364**	-0.042	-.281**	-.338**	1																	
11 Abandonment	.160*	.552**	-.466**	-0.064	-.412**	-.487**	0.004	-.239**	-.376**	.561**	1																
12 Mistrust	.205**	.665**	-.545**	-0.04	-.408**	-.479**	0.044	-.242**	-.397**	.592**	.804**	1															
13 Socialisolation	.185**	.651**	-.603**	0.031	-.434**	-.469**	-0.075	-.293**	-.368**	.606**	.668**	.703**	1														
14 Defectiveness	.238**	.695**	-.581**	-0.004	-.452**	-.470**	-0.013	-.308**	-.376**	.688**	.763**	.768**	.797**	1													
15 FailuretoAchieve	.253**	.605**	-.630**	0.032	-.467**	-.428**	0.001	-.428**	-.427**	.563**	.685**	.573**	.579**	.641**	1												
16 PracticalIncomp	.284**	.617**	-.623**	0.048	-.469**	-.422**	-0.034	-.445**	-.416**	.516**	.640**	.617**	.572**	.593**	.840**	1											
17 Vulnerability	.202**	.674**	-.595**	0.003	-.484**	-.488**	0.027	-.425**	-.442**	.562**	.685**	.702**	.593**	.638**	.654**	.678**	1										
18 Enmeshment	0.092	.370**	-.360**	-0.116	-.243**	-.193**	-0.006	-.157*	-.283**	.413**	.417**	.482**	.416**	.356**	.383**	.454**	.536**	1									
19 Subjugation	.288**	.664**	-.656**	-0.078	-.481**	-.506**	-0.012	-.345**	-.455**	.602**	.733**	.685**	.643**	.671**	.667**	.665**	.713**	.572**	1								
20 SelfSacrifice	.274**	.558**	-.410**	-0.055	-.232**	-.309**	.146*	-.178*	-.299**	.562**	.671**	.672**	.549**	.615**	.557**	.507**	.597**	.483**	.671**	1							
21 EmotionInhibition	.195**	.587**	-.571**	0.033	-.422**	-.468**	-0.074	-.298**	-.339**	.648**	.639**	.686**	.687**	.762**	.598**	.546**	.583**	.368**	.650**	.610**	1						
22 UnrelStandards	0.127	.231**	-0.051	0.054	0.007	-.186**	0.119	0.064	-0.064	.195**	.338**	.431**	.366**	.377**	.173*	.208**	.282**	.245**	.330**	.338**	.344**	1					
23 Entitlement	0.136	.262**	-.188**	0.001	-0.121	-0.078	-0.04	0.015	-0.247**	.196**	.293**	.370**	.317**	.267**	.244**	.353**	.319**	.380**	.348**	.364**	.220**	.469**	1				
24 InsuffSelfControl	.189**	.507**	-.524**	-0.027	-.365**	-.313**	-0.035	-.296**	-.328**	.415**	.523**	.448**	.403**	.418**	.588**	.580**	.468**	.367**	.514**	.460**	.467**	.179*	.397**	1			
25 Admiration	.169*	.296**	-.345**	0.035	-.172*	-.227**	0.015	-0.043	-.252**	.235**	.405**	.464**	.358**	.358**	.326**	.409**	.406**	.387**	.431**	.329**	.249**	.465**	.593**	.381**	1		
26 Pessimism	.242**	.708**	-.656**	-0.06	-.473**	-.470**	0.006	-.357**	-.471**	.571**	.718**	.762**	.620**	.715**	.681**	.666**	.815**	.516**	.754**	.626**	.622**	.359**	.364**	.562**	.506**	1	
27 SelfPunithiveness	.155*	.561**	-.373**	-0.013	-.283**	-.356**	0.108	-.183**	-.284**	.443**	.623**	.621**	.569**	.689**	.503**	.482**	.569**	.356**	.592**	.490**	.510**	.546**	.340**	.315**	.408**	.620**	1
28 EMS_Total	.195**	.724**	-.671**	-0.08	-.510**	-.499**	-0.068	-.360**	-.474**	.657**	.842**	.849**	.767**	.828**	.742**	.735**	.793**	.539**	.827**	.716**	.752**	.444**	.458**	.625**	.541**	.853**	.678**

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

5.6.3: Cronbach’s Alphas for EI and EMS

Scale	Cronbach’s Alpha
EMS subscales	.762
Abandonment	.750
Emotional deprivation	.741
Mistrust	.744
Social isolation	.746
Defectiveness	.743
Failure to achieve	.746
Practical incompetence	.750
Vulnerability to harm	.747
Enmeshment	.756
Subjugation	.748
Self-sacrifice	.751
Emotional inhibition	.748
Unrelenting standards	.756
Entitlement/superiority	.757
Insufficient self-control/self-discipline	.751
Admiration/recognition seeking	.754
Pessimism/worry	.743
Self-punitiveness	.750
EI subscales	.782
Use of emotions	.743
Regulation of emotions	.799
Self-emotion appraisal	.738
Other’s emotion appraisal	.700

Appendix 6: Guidelines for Journal of Individual Differences

The *Journal of Individual Differences* publishes manuscripts dealing with individual differences in behavior, emotion, cognition, and their developmental aspects. This includes human as well as animal research.

The *Journal of Individual Differences* is conceptualized to bring together researchers working in different areas ranging from, for example, molecular genetics to theories of complex behavior. Moreover, it places emphasis on papers dealing with special methodological and conceptual issues in basic science as well as in their applied fields (assessment of personality and intelligence).

Regular research articles are papers reporting two or fewer experiments and may contain up to 5,000 words (including everything, i.e., text, references, notes, tables, figures, and appendices).

Extended research articles are papers reporting more than two studies with different samples and methods and may contain up to 10,000 words (including everything, i.e., text, references, notes, tables, figures, and appendices).

Review articles may contain up to 10,000 words (including everything, i.e., text, references, notes, tables, figures, and appendices).

Meta-analyses may contain up to 10,000 words (including everything, i.e., text, references, notes, tables, figures, and appendices).

Manuscript Preparation

Manuscripts should be prepared according to the *Publication Manual of the American Psychological Association* (6th ed.). In particular, statistical and mathematical copy and references should conform to the *Publication Manual*.

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Submissions are only accepted online at www.editorial-manager.com/jindivdiff. Reviews are returned to the authors within 4 weeks of submission. Please follow the online instructions for submission. Should you have any technical queries regarding this process, please contact Julianne Munson, Hogrefe Publishing. E-mail journalsproduction@hogrefe.com, Tel. +49 551 99950-422, Fax +49 551 99950-425.

The following manuscript formats are accepted:

- rtf (rich text format)
- doc (Microsoft Word, version 6.0 and higher)

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Appendix 7: Guidelines for Journal of Youth and Adolescence

Manuscripts should not exceed 25-30 pages (including text, references, tables and figures); the Editor considers exceptions if authors provide adequate justifications when they submit their manuscripts. It is expected that the review process will result in an additional 5 to 10 pages of text.

- **Title Page**

The title page should include: The name(s) of the author(s), A concise and informative title
The affiliation(s) and address(es) of the author(s), The e-mail address, telephone and fax numbers of the corresponding author

- **Abstract**

Please provide an abstract of 150 to 250 words. The abstract should not contain any undefined abbreviations or unspecified references.

- **Keywords**

Please provide 4 to 6 keywords which can be used for indexing purposes.

- **Main text**

Begin with a broad, orienting sentence that highlights the nature and importance of the area of inquiry, describe the problem under investigation, specify pertinent characteristics of participants (e.g., age, percent female, ethnic composition of the sample), report findings and conclusions, and use the third person perspective.

- **Subheadings**

Use at least two subheadings if you provide any subheading under a higher-level subheading Avoid using footnotes, unless explicitly requested otherwise.

- **Text Formatting**

Manuscripts should be submitted in Word.
Use a normal, plain font (e.g., 10-point Times Roman) for text.
Use italics for emphasis.
Use the automatic page numbering function to number the pages.
Do not use field functions.
Use tab stops or other commands for indents, not the space bar.
Use the table function, not spreadsheets, to make tables.
Use the equation editor or MathType for equations.
Save your file in docx format (Word 2007 or higher) or doc format (older Word versions).
Manuscripts with mathematical content can also be submitted in LaTeX.

- **Headings**

Please use no more than three levels of displayed headings.

- **Abbreviations**

Abbreviations should be defined at first mention and used consistently thereafter.

- **Footnotes**

Footnotes can be used to give additional information, which may include the citation of a reference included in the reference list. They should not consist solely of a reference citation, and they should never include the bibliographic details of a reference. They should also not contain any figures or tables.

Footnotes to the text are numbered consecutively, those to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data). Footnotes to the title or the authors of the article are not given reference symbols. Always use footnotes instead of endnotes.

- **Acknowledgments**

Acknowledgments of people, grants, funds, etc. should be placed in a separate section before the reference list. The names of funding organizations should be written in full.

- **Main Body**

- Introduction (although not labelled as such)
- Hypotheses (remind readers of rationales and actually make testable predictions or explain why you cannot predict)
- Method (include demographic information about participants, such as race, ethnicity, and sex; have a subheading for each key variable, followed by appropriate text describing the variable and its effectiveness)
- Results
- Discussion
- References
- Appendices (if appropriate)

- **Symbols and numerals**

Please use the standard mathematical notation for formulae, symbols etc.:

Italic for single letters that denote mathematical constants, variables, and unknown quantities

Roman/upright for numerals, operators, and punctuation, and commonly defined functions or abbreviations, e.g., cos, det, e or exp, lim, log, max, min, sin, tan, d (for derivative)

Bold for vectors, tensors, and matrices.

- **Other**

Authors must use nonsexist language. Make correct use of the terms "gender" and "sex." The term "gender" refers to culture and should be used when referring to men and women as social groups. The term "sex" refers to biology and should be used to emphasize biological distinctions.

Carefully use tenses. The past tense refers to a past study. Specific results are written in the past tense, given that the study already has been completed. Use the present tense to refer to results (i.e., "the results indicate. . .") when your narrative refers to hypotheses that are being discussed in the present.

Use an active voice. Consult *The Elements of Style* (W. Strunk, Jr. & E.B. White) and *Style: Writing with Clarity and Grace* (J. M. Williams).

- **Citation**

Cite references in the text by name and year in parentheses. Some examples:

Negotiation research spans many disciplines (Thompson 1990).

This result was later contradicted by Becker and Seligman (1996).

This effect has been widely studied (Abbott 1991; Barakat et al. 1995; Kelso and Smith 1998; Medvec et al. 1999).

- **Reference list**

The list of references should only include works that are cited in the text and that have been published or accepted for publication. Personal communications and unpublished works should only be mentioned in the text. Do not use footnotes or endnotes as a substitute for a reference list.

Reference list entries should be alphabetized by the last names of the first author of each work.

Journal article

Harris, M., Karper, E., Stacks, G., Hoffman, D., DeNiro, R., Cruz, P., et al. (2001). Writing labs and the Hollywood connection. *Journal of Film Writing*, 44(3), 213–245.

Article by DOI

Slifka, M. K., & Whitton, J. L. (2000) Clinical implications of dysregulated cytokine production. *Journal of Molecular Medicine*, doi:10.1007/s001090000086

Book

Calfee, R. C., & Valencia, R. R. (1991). *APA guide to preparing manuscripts for journal publication*. Washington, DC: American Psychological Association.

Book chapter

O'Neil, J. M., & Egan, J. (1992). Men's and women's gender role journeys: Metaphor for healing, transition, and transformation. In B. R. Wainrib (Ed.), *Gender issues across the life cycle* (pp. 107–123). New York: Springer.

Online document

Abou-Allaban, Y., Dell, M. L., Greenberg, W., Lomax, J., Peteet, J., Torres, M., & Cowell, V. (2006). Religious/spiritual commitments and psychiatric practice. Resource document. American Psychiatric Association. http://www.psych.org/edu/other_res/lib_archives/archives/200604.pdf. Accessed 25 June 2007.

Journal names and book titles should be italicized.

For authors using EndNote, Springer provides an output style that supports the formatting of in-text citations and reference list.

- **Tables**

- All tables are to be numbered using Arabic numerals.

- Tables should always be cited in text in consecutive numerical order.
- For each table, please supply a table caption (title) explaining the components of the table.
- Identify any previously published material by giving the original source in the form of a reference at the end of the table caption.
- Footnotes to tables should be indicated by superscript lower-case letters (or asterisks for significance values and other statistical data) and included beneath the table body.

For the best quality final product, it is highly recommended that you submit all of your artwork – photographs, line drawings, etc. – in an electronic format. Your art will then be produced to the highest standards with the greatest accuracy to detail. The published work will directly reflect the quality of the artwork provided.

- **Figure Lettering**

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- Variance of type size within an illustration should be minimal, e.g., do not use 8-pt type on an axis and 20-pt type for the axis label.
- Avoid effects such as shading, outline letters, etc.
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- Figure captions begin with the term Fig. in bold type, followed by the figure number, also in bold type.
- No punctuation is to be included after the number, nor is any punctuation to be placed at the end of the caption.

- Identify all elements found in the figure in the figure caption; and use boxes, circles, etc., as coordinate points in graphs.
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If no conflict exists, authors should state: The authors declare that they have no conflict of interest.

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